THE BUILDER

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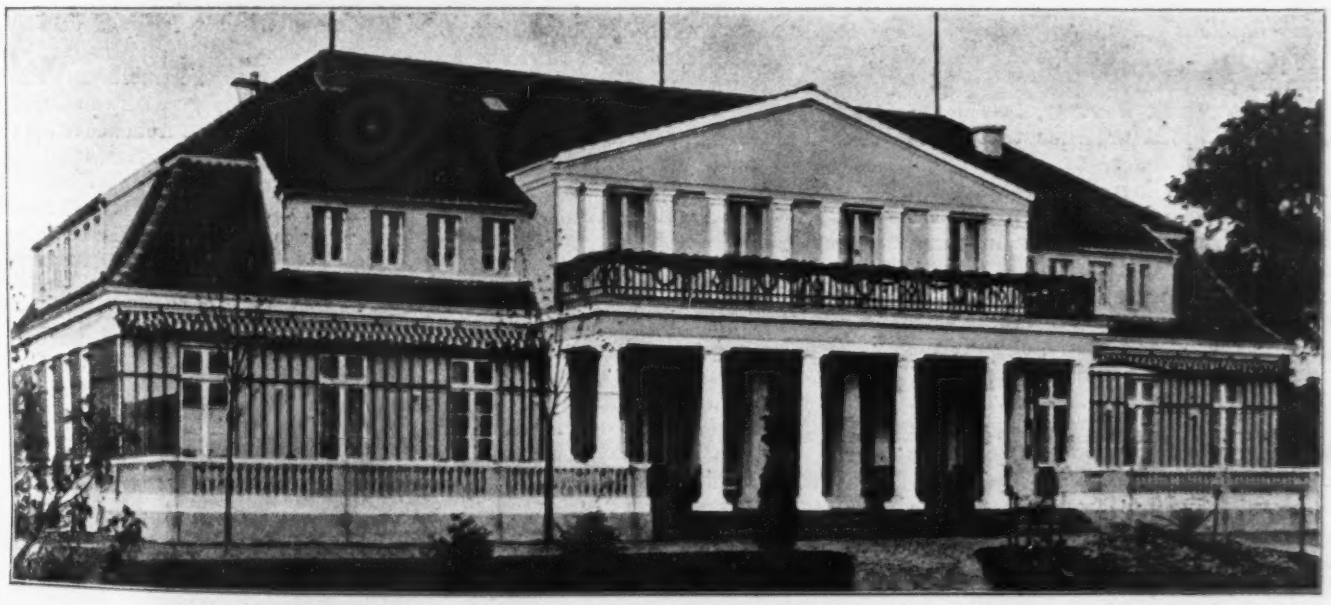


A Golf Club House. Messrs. Abbehusen & Blendermann, Architects, Bremen.
(From *Der Baumeister.*)

THE TOWN PLANNER.

ON December 17 last year a meeting was held at Tufton-street to debate the question whether, in planning towns and estates, the architect or the surveyor should be in the dominant position; whether the architect should conceive the scheme from his point of view, having the assistance of a surveyor to determine practical questions, or whether the surveyor should develop his plans and call in the architect as critic to amend them from the æsthetic standpoint. At the meeting in question, though many opinions were expressed, the matter cannot be said to have reached a logical conclusion, and it is one of so much interest to both professions that we propose to open our correspondence columns to those desiring to give their views as to the more important qualifications in this class of work.

The broadminded layman would probably dismiss the point very promptly by saying that it depended on the architect and the surveyor, and by this means avoid a discussion on abstract questions so distasteful to the average practically-minded Britisher. This, however, would hardly meet the difficulty that must present itself to all who have given any study to the subject, a difficulty that is inherent to all technic arts, namely, do we find that when an art has grown up out of a practical necessity, the demands of this necessity still continue to dominate the art, or that the art by reason of its higher emotional value dominates the expression of the physical requirements?

Evidently in the case of pure architecture the latter alternative operates, but so little of man's constructive efforts is or is intended to be pure architecture; we have every degree between this and the purely utilitarian, and it remains to be determined what place in this scale of degrees is taken by town planning. The architect naturally desires to put it near the æsthetic end of the scale, while the surveyor claims it as belonging more to the purely practical; the architect points to the fact that the great historical examples were the work of architects, to which the surveyor replies with reason

that in those days his profession was merged in that of the architect; the architect throws out a delicate hint about the imaginative faculty, to be met with the reply that the imaginative faculty is as necessary to the scientific mind as to the artistic, else where would be our inventors? Then the question may crop up as to why the architect's functions may be considered to stop at the combination of various requirements and parts that make up a building, and should not go on to the relationship and grouping of buildings to form a village or town. Here the architect is perhaps on firmer ground, as after all there is no essential difference between the principles on which a single building is designed and those on which a number of buildings are grouped together, as is obvious, when we recollect that a college, asylum, or hospital is considered to be quite within the scope of ordinary architectural practice. If the architect is qualified to house 500 to 1,000 persons under special conditions of this kind, surely he is equal to providing for at least the same number under the normal conditions of everyday life. Our surveyor will be but a weakling if silenced by such a contention as this, for, of course, it is open to him to point out that skill in the arrangement of extensive buildings of a technical character is not an essential concomitant of skill in architecture, but is really the exercise of qualifications more akin to his own; so we are not at the end of the argument yet.

This last retort, however, leaves untouched the broad principle that there is no essential difference between the mental processes involved in arranging and massing together of the parts that go to make up the single building and those demanded in the combination of such buildings with each other; the differences that in one case there is a ceiling, in the other the sky, or a marble corridor in place of a macadam road, are not differences that call in any variation of principle; even the drainage of an estate is not so extraordinarily unlike the drainage of a roof.

We will leave the argument here to pass on to another aspect of the case; we have hitherto merely referred to the surveyor as the professional man, but we must not overlook the surveyor in his official capacity. The municipal surveyor or engineer will point out that, quite apart from his qualifications, he is, as it were, in a preferential position as a town planner; he is the recognised adviser of those who have to carry out this work, and has at his disposal all the statistics on which to base those preliminary studies that must precede a scheme, clearly who but he should be the man to prepare it. This would be reasonable enough but for the fact that he was not appointed on the strength of his capacities as a town planner, but on qualifications of quite a different character. While giving unstinted praise to the municipal surveyors for their energy in studying a subject so complex and many-sided, it must be candidly admitted that but a small proportion have received an education fitting them to appreciate the æsthetic requirements that must be considered if our town plans are to be in advance of private estate plans in the past.

In the course of another generation it will probably be regarded as a matter of course that town-planning schemes, except in cases of special importance, should be dealt with by recognised officials, for these will then have received the necessary training, but for the present it would certainly appear desirable that assistance should be sought for among the ranks of outside architects and surveyors who have displayed especial aptitude for this kind of work. The whole matter demands most careful consideration, and for that reason we shall welcome expressions of opinion from those who take an interest in it.

DRAWINGS AND ETCHINGS AT THE FINE ART SOCIETY.

THE Fine Art Society are to be congratulated on their present show of etchings. In many respects it would be difficult to bring together within a comparatively small compass a more interesting exhibition of modern work, whether for the quality of the independent etchings or for the purpose of contrast and comparison. In addition to the etchings the exhibition includes a number of pencil drawings, carefully elaborated, very nice in tone, by Mr. Axel H. Haig. Many of these, we understand, have served or are to serve as preliminary studies for this artist's etchings. Of all the graphic arts that of line etching is probably most akin to that of the architectural draughtsman, largely on account of the fact, no doubt, that its chief artistic virtue consists in representing mass and form almost entirely through the medium of line. Mr. Haig, as is generally known, in his early career was engaged in architectural work (he was for nine years in the office of Mr. Ewan Christian); and his choice of subject in etching has almost invariably been influenced by his taste for architecture. The work of Seymour Hayden, David Law, Frank Short, D. Y. Cameron, Wm. Monk, and other artists is also represented. Mr. Brangwyn's feeling for line would seem to make him idiosyncratically an etcher. Whether in painting or etching, indeed, his artistic terms are extremely elaborate, extremely bold, suggesting, definitely enough, the sort of atmosphere in which the spectacle of things is interpreted with that decorative spaciousness which is styled the "grand manner." Mr. Brangwyn's art is aggressively individual; his punctuation, the underscoring of his phrases, as it were, is so insistent, that you at times feel the burden of it. He emphasises the effect of chiaroscuro; he believes in an individual boldness of line, and he has a declamatory feeling for spacious composition to which we all must hearken. On an adjacent wall there are the etchings of Seymour Hayden. You could scarcely wish for a more striking contrast. Here we have all the qualities which Mr. Brangwyn emphasises, a feeling for composition, line, light, and shade, but expressed in much gentler terms. There is nothing aggressive in the work of this most delightful etcher, whose technical virtuosity would seem to be almost unapproachable. His etching needle plays over the plate with all the brilliancy and delicacy of summer lightning. Adhering strictly to the convention of the line etcher, it imposed no limitations on the facility and grace of his expression. A whiff of smoke, a bunch of clouds, the up-flow of the tide of a river—a few curling, delicate lines, like a tangle of twisted thread, and these things are before you. But unlike many artists to whom is given the command of great technical dexterity, Seymour Hayden never allowed his obvious delight in the manipulation of the needle to run away with him. It was completely at the service of a subtle and accomplished artistic perception. Among the Seymour Hayden exhibits there is a reproductive etching of Turner's "Calais Pier," remarkable for the interpretative quality of the Turner spirit, and interesting as one of Hayden's rare adventures in reproductive work. As a transcript of painting in the terms of another art, could anything be finer? Then there is the work of Mr. Haig, Mr. Frank Short, Mr. Cameron, Mr. Mortimer Menpes, Mr. Slocombe, and other artists, all of an interesting and individual character.

The majority of the subjects (taking the exhibition altogether) are chosen from buildings. Mr. Haig is well known for his representations of Gothic architecture; Mr. Brangwyn has chosen for one of his subjects the church of "Santa Maria della Salute," drawn from a somewhat unusual point of view (and architecturally not the most interesting); Mr. Menpes has given us an admirable view of Saint Paul's from above the roofs at the north side of St. Martin's, Ludgate Hill, and Mr. Slocombe a view of Antwerp Cathedral, with the traffic of the market place in the foreground. These and other subjects of the kind scarcely indicate any originality in their selection. And then we come to the quaint bits, the tumble-down bits, of both urban and country building, which are chosen, we suppose, because they present the obvious variety of line with which the term "picturesque" has become associated. But in most of these examples, so far as the choice of subject is concerned, the tale has been told. The repetition which we find at various exhibitions in this matter would seem to suggest that individual taste is only exercised within the arbitrary lines of a formula, which, in a large measure, expresses the somewhat naïve sentiment of later Victorian days. So far as the delineation of architecture is concerned, at any rate, we should imagine that there is room for considerable extension of this hierarchic idea of the "picturesque."

COUNCIL OFFICES, KNARESBOROUGH. — The foundation-stone of the new offices of the Knaresborough Urban District Council was laid recently by the Chairman of the Council, Mr. Thomas Stead, J.P. The new buildings are being erected at York-place corner, which was formerly occupied by only meagre dwellings. The building has been designed by Mr. Arthur Hiscoe, late of Harrogate, and the work is being carried out by Messrs. D. Kitching & Son, of Knaresborough, in conjunction with the Surveyor to the Council (Mr. F. Cartledge). The plumbing work has been intrusted to Mr. Thompson; the plastering to Mr. Coleman, of Knaresborough; the slating to Councillor Shepherd, of Harrogate; and the painting to Mr. J. Morley, of Knaresborough.

NOTES.

New Turner Wing at the Tate Gallery.

On Wednesday the new Turner Wing of the Tate Gallery, the gift of the late Sir Joseph Duveen, was opened to the public. By this addition nine new galleries are added to the existing building. The architect was Mr. Romaine Walker, and the builders, Messrs. Patman & Fotheringham. At the expense of Mr. J. J. Duveen, the late Sir Joseph's eldest son, a special staircase has been built to connect the upper and lower floors independently of the existing main stairs. The walls of the two principal new galleries, which contain the most important paintings, are covered with a Venetian red silk brocade; the skirtings doorways, and cornice are of Verd antique marble, with ormolu caps and bases to the pilasters. The effect is very rich, and the rather Mid-Victorian magnificence is by no means out of harmony with the purpose for which it is designed. These galleries are lighted from the roof, which is semi-circular. The galleries for the water-colour drawings are of smaller dimensions generally. As to the wisdom of removing the paintings from the National Gallery we say nothing.

Manchester Infirmary Site.

Mr. T. C. Horsfall, in the *Manchester Guardian*, makes an emphatic plea for the allocation of this site to the purposes of an Art Gallery and Central Library, the original proposal of the Corporation, which was defeated by one vote in favour of the consideration of its suitability for a new Exchange. The leader of the Exchange party is quoted as contending that the chief thing necessary for the welfare of Manchester is that it shall be helped to buy and sell its wares more easily and as being sure that if it is enabled in that way to make more money all other desirable things will be added to it. Mr. Horsfall's reply is that Manchester has often had great riches and yet has not secured the "life which is life indeed," and that physical, mental, and moral health must come before considerations of material wealth. He adds that if there is one thing Manchester people may be trusted to do without help from the Corporation it is to buy and sell, and that the Town Council ought to help forward the things necessary for the public welfare by setting a standard in advance of that attained to by the average individual.

Lambeth Bridge.

In connexion with the recent closing of Lambeth Suspension Bridge to vehicular traffic, we note the reported intention of replacing the structure by a new bridge designed as an appropriate adjunct to the extension of the Victoria Embankment from the Houses of Parliament to Chelsea. We trust that if the project is actually under contemplation the County Council will make a point of taking architectural advice on the artistic features of the design, so that the bridge may be a worthy addition to those already existing and an ornament to the Metropolis.

Architects and their Drawings.

In a recent case at Derby, an architect suing for fees stated in his evidence that it was not the practice of architects to make their own drawings, and that he had not made a drawing for thirty years. We cannot let a statement of this kind pass unchallenged; whatever this gentleman's own method may be, we are sure that there are few architects of repute who do not execute with their own hands all such drawings or portions of drawings as have a definite influence on the character of their work; it would be impossible for them to express their artistic individuality otherwise.

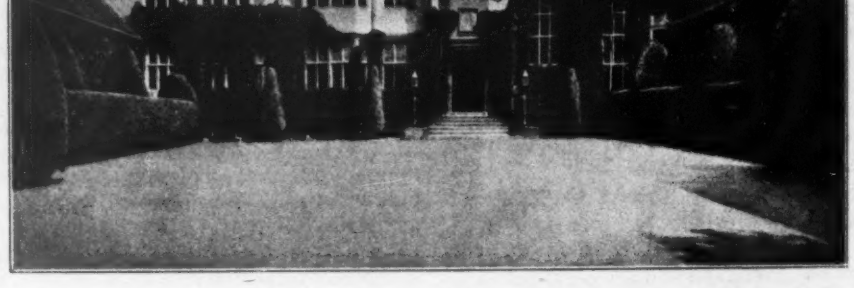
The Priory, Warwick.

The Priory, Warwick, of which we give two illustrations, is now in the market. The Priory of St. Sepulchre was founded in the reign of King Henry I., by Henry of Newburgh, first Earl of Warwick. Dugdale says that it was the first house of its Order, and "was superior of all others in England, Wales, Scotland, and Ireland till the second destruction of Jerusalem." The Priory was dissolved in the reign of King Henry VIII., and the house and lands granted to Thomas Hawkins, who, having pulled down the old buildings, built the present house, which he finished about 1556. The great hall is a fine apartment, about 60 ft. long, 25 ft. wide, and 18 ft. in height. The eastern wing was finished in 1745, and in the room now known as "The White Room" is some carving of the Grinling Gibbons school. Apart from its architectural interest, the Priory is interesting from the fact that Henry Wise, gardener to William III., Anne, and George I., acquired the estate in 1709, and lived here till his death in 1738. Wise studied horticulture under the celebrated George London, and eventually became sole partner in the latter's nursery at Brompton. Shortly after the accession of William III. he was appointed deputy-ranger of Hyde Park, and superintendent of the royal gardens at Hampton Court, Kensington, and elsewhere. Among famous gardens designed by London and Wise were those of Blenheim, Wanstead, Edger, and Melbourne in Derbyshire. It is most probable that he laid out the grounds of the Priory from his own design. The east wing referred to above was built by Matthew Wise, who was the owner at the time.

Paris Floods Commission.

One of the Reports presented by the Commission appointed to inquire into the question of flood prevention in

The Priory, Warwick: The Inner Hall.



The Priory, Warwick: The Courtyard.

Paris recommends the construction of drainage wells and relief reservoirs near the upper reaches of the Seine. The idea is that wells would be beneficial by diverting flood waters into the porous subsoil, in accordance with practice in the South of France. As, however, the underground water level in the Paris district is not materially lower than it was in February last, it may well be doubted whether this expedient would be of much practical value. Large reservoirs, to be filled during times of exceptional flood, naturally stand on another footing, the only objection to them being the heavy outlay involved.

ARCHITECTURAL EDUCATION AT HOME AND ABROAD.

By Alfred W. S. Cross, M.A., V.P.R.I.B.A.

Part IV.

The courses of study established at the Manchester School of Architecture, and arranged in accordance with a scheme of tuition approved by the University, the Manchester Municipal School of Technology, the Municipal School of Art, and the Manchester Society of Architects, are intended to meet the requirements of students who desire—

(1) To take a degree of the University either in the Faculty of Arts or in the Faculty of Technology.

(2) To obtain the certificate of the University in Architecture.

(3) To prepare for the qualifying examinations for Associate of the Royal Institute of British Architects.

(4) To take a course in Architecture without proceeding to a degree or qualification.

(5) To attend any of the special lecture courses in Architecture either at the University, or at the School of Technology, or at the School of Art.

(6) To attend evening classes in the subjects of Architecture and Building Construction held either at the Municipal School of Technology or in the Municipal School of Art.

Candidates for the degrees offered by the University of Manchester to students of architecture in the Faculty of Arts, B.A. (Honours School of Architecture), and in the Faculty of Technology, B.Sc.Tech., are required (I.) to have passed the prescribed Matriculation Examination in the following subjects:—(*a*) English Language or Literature; (*b*) English History; (*c*) Mathematics; (*d*) three of the following (one of which must be a language), viz., Greek, Latin, French, German, or some other language approved by the Board; Mechanics or Physics, Chemistry, Geography (Physical, Political and Commercial); Natural History (Plants and Animals).

(II.) To have attended the approved classes for the Intermediate Examination subjects, and to pass the Intermediate Examination for the ordinary degree in the following subjects:—

A. For the Degree of B.A. (Honours School of Architecture):—(*a*) One of the following: Greek, Latin, French, German; (*b*) one of the following: Ancient History, Modern History, English Literature; (*c*) one of the following: Physics, Pure Mathematics, Applied Mathematics.

B. For the Degree of B.Sc.Tech.:—(1) Mathematics; (2) Physics; (3) A Language (other than English).

Candidates who have passed the Intermediate Examination in Science or Technology will be exempted from A (*a*) and (*c*).

III. The Final Course for the degree of B.A. and B.Sc.Tech. includes the following subjects:—

A. For the degree of B.A. and B.Sc.Tech.:—

1. History of Architecture.—(*a*) General Architectural History; (*b*) Renaissance and Modern Architecture.

2. Architectural Construction.—(*a*) Building Construction and Sanitation (Surveying may be taken as an additional subject); (*b*) Graphic Statics; Theory of Structures; Strength and Testing of Materials.

3. Architectural Design.—(*a*) Freehand and Architectural Drawing; (*b*) Thesis Design, with Memoir; (*c*) Oral Examination (if required).

4. Architecture (a special period).

B. For the Degree of B.A., in addition to 1, 2, 3, and 4:—

5. Two of the following subjects, one of which must be (*a*) or (*b*): (*a*) General History of Art; (*b*) History of Classic Art; (*c*) Advanced Freehand Drawing; (*d*) Measured Drawing of a Building (to be approved by the Professor of Architecture), with Memoir; (*e*) Modelling; (*f*) Decorative Design.

C. For the degree of B.Sc.Tech., in addition to 1, 2, 3, and 4:—

6. Applied Mechanics and Graphic Statics.
7. Special Architectural Construction.
8. Surveying.
9. Chemistry.

Candidates are examined in subject 6, and have to furnish certificates of attendance in 7, 8, and 9.

Candidates who have passed the Intermediate Examination of the Royal Institute of British Architects are exempted from the courses in Architecture required in the Junior Year (see below).

Candidates who have obtained the University Degree in Architecture are exempted by the Royal Institute from all but the Final Examination qualifying for A.R.I.B.A.

Courses of Study.

Subsequently to matriculation the University Degree Course covers three years, which are respectively described as the Junior, Senior, and Final Years.

The course for the Junior Year is as follows:—

1. The three classes for the Intermediate Examination.

2. Classes in Architecture.—(*a*) History of Architecture, at the Owens College; (*b*) Elements of Architecture, at the School of Art (special attention is devoted in alternate years to Classic and Gothic Architecture; a class in drawing is held in connexion with the lecture course, and students intending to take the Royal Institute of British Architects' Examinations may prepare their "Testimonies of Study" in this class); (*c*) Freehand Drawing, at the School of Art; (*d*) Applied Geometry and Building Construction, at the School of Technology; (*e*) Sanitation, at the School of Technology; (*f*) Architectural Drawing, at the School of Art.

The course for the Senior Year is as follows:—(1) Mechanics (if not already taken); (2) Renaissance and Modern Architecture, at the Owens College; (3) Elements of Architecture (Classic and Gothic Construction and Detail), at the School of Art (students intending to take the Royal Institute of British Architects' Examinations may continue the preparation for the "Testimonies of Studies" in the class for Drawing; (4) Mediæval Architecture, at the Owens College (the complete course covers two sessions); (5) History of Art, at the Owens College (the complete course including Sculpture and Painting covers two years); (6) Sanitation, at the School of Technology; (7) Building Construction, at the School of Technology; (8) Architectural Drawing and Design, at the School of Art; (9) Freehand Drawing, at the School of Art. For the B.Sc.Tech. degree, to be taken either in the Senior or the Final Year: (*a*) Surveying; (*b*) Chemistry; also, for the B.A. degree, for students proposing to submit these subjects as options; (*c*) Modelling or (*d*) Decorative Design, at the School of Art.

The course for the Final Year is as follows:—(1) Mediæval Architecture, at the Owens College; (2) History of Art, at the Owens College; (3) Engineering, with Testing Laboratory, at the Owens College or at the School of Technology; (4) Thesis Design, at the School of Art; (5) Modern Building Construction and Steel Framing, at the School of Technology (for students proceeding to the B.Sc.Tech. degree).

Certificate Course.

In view of the change in the Architecture curriculum proposed by the Royal Institute of British Architects, a complete scheme for a Certificate Course has been under consideration. The Board of Architectural Education has issued a revised syllabus of architectural training, the complete course to cover four years. For the first two of these the student is expected to devote his whole time to his studies; during the remaining two years he would carry on his studies in continuation classes, while engaged in regular office work. The course of study given below has accordingly been framed to meet these conditions. The arrangement by which, in Manchester, many architects have agreed to allow assistants to devote Monday and Thursday afternoons to attend the Architecture classes at the Schools of Art and Technology and the University lectures, would greatly facilitate the adoption of this scheme, under which a Certificate in Architecture would be offered by the University. The Board of Architectural Education has recommended to the Council of the Institute that exemption from the Royal Institute of British Architects' Intermediate Examination should be granted to students who obtain a first-class in the Certificate Examination, when it has been formally instituted; and that, if desired by

the student, the Certificate Examination may be taken by him at the end of his third year. The Council of the Institute has not yet finally accepted this recommendation for exemption. The suggested course which follows is therefore necessarily provisional.

Candidates before entering upon a course leading to a certificate are required to pass an entrance examination in the following subjects:—

English Composition (with some simple questions in English Literature).

Mathematics (subjects of the first three books of Euclid and Algebra up to and including Quadratic Equations).

One other language (elementary).

Elementary Science, including Physics, Chemistry, and Mechanics.

In lieu of this special examination candidates may offer a certificate of having passed any public examination of an adequate standard as exempting from the whole or any part of the above entrance examination.

Proposed Course of Study.

The course for the Junior Year is as follows:—

1. Mathematics.
2. History of Architecture, at the Owens College.
3. Building Construction, at the School of Technology.
4. Architectural Drawing, at the School of Art.
5. Freehand Drawing, at the School of Art.

The course for the Senior Year includes:—

1. Mechanics.
2. Renaissance and Modern Architecture, at the Owens College.
3. Elements of Architecture, at the School of Art.
4. Historic Ornament, at the School of Art.
5. Building Construction, at the School of Technology.
6. Sanitation, at the School of Technology.
7. Architectural Drawing and Design, at the School of Art.
8. Freehand Drawing, at the School of Art.

The course for the Final Year comprises:—

1. Elements of Architecture.
2. Architectural Perspective.
3. Architectural Design.
4. Building Construction (Honours stage), at the School of Technology.

Architectural Studio.

The studio for Architectural Drawing and Design—a recent addition to the School of Art, Cavendish-street—is open each weekday, except Wednesday and Saturday afternoons, and is available throughout the school session.

Tutorial instruction in Architectural Drawing and Design and lectures in the studio, combined with sketching and drawing, are given on the Elements of Architecture and Historic Ornament.

There are also short introductory lectures in which the special conditions for each subject are discussed, and the designs are worked out under instruction and criticism given by visiting members of the Manchester Society of Architects.

The "Testimonies of Study" required from candidates for the Associateship of the Royal Institute of British Architects can be prepared in the Architecture studio. Students are free to work at their designs, class exercises, measured work, or other architectural drawing, an instructor being present to offer advice and criticism at stated times.

The collection of architectural casts, both Gothic and Renaissance, in the School of Art Museum, adjoining the studio, contains excellent examples suitable for measured work and for architectural freehand drawing, and, in addition, a class for measuring and plotting existing buildings and old work in and near Manchester is held, after April, in place of lectures and drawing classes during one afternoon of each week.

Special Course at the Manchester School of Technology and the Municipal School of Art.

The two years' Royal Institute of British Architects' Course, as below, has been established for some years in preparation for the Intermediate Examination of the Royal Institute of British Architects.

This course, supplemented by the evening classes in Building Construction and Graphics at the School of Technology, and by Drawing classes at the School of Art, is intended expressly for architects' pupils, improvers, and assistants desirous of presenting themselves for the Intermediate Examination of the Royal Institute of British Architects, so as to qualify for the grade of Student of the Institute, and in preparation for the final grade of Associate. The required "Testimonies of Study" are prepared in this course, and students are also expected to take, in their first year, the lectures on the History of Architecture, given at the Owens College, and, in their second year, the course of lectures on Renaissance Architecture, given by the Professor of Architecture.

Thus, as with the Liverpool School of Architecture, the aim of the Manchester School is to provide a comprehensive scheme of professional education at a University standard, and the course of tuition appears to have been carefully arranged in accordance with this object.

But, whilst the curriculum of study adopted at Manchester appears to me to be quite satisfactory, I am not at all certain that it would not be conducive to the individual welfare of the student if his academic training were carried out from start to finish under the personal supervision of a Professor or Director of an architectural school located in one central building, rather than in the various institutions in which he now receives it.

For to the student of architecture nothing can be more valuable than the close understanding resulting from that intimate relationship between pupil and teacher which is only to be obtained by daily intercourse. And it is beyond question that the latter should be, if possible, a practical architect of large and varied experience. Indeed it is owing to the existence of this feeling of camaraderie between principal and pupil that the generally defective, old-time system of pupilage has occasionally been successful in its application.

THE ARCHITECTURAL ASSOCIATION EXHIBITION.

THE annual exhibition of the work of the Architectural Association Day and Evening Schools, which was opened on July 15, is always particularly interesting from the fact that it may be taken as genuinely representative. Every student being represented on the walls, it is thus possible accurately to gauge the average quality of the work which is being turned out at Tufton-street; after all, the factor of chief importance in any scheme of training. A careful inspection of the exhibition will lead the visitor to the conclusion that the Beaux-Arts and Neo-Grec influences are not so predominant here as in other parts of the kingdom: this may be due to the fact that in the south of England, at any rate, we do not design naturally in terms of large stonework; when all is said and done, the average student in his future career will have to deal with brick at least as much as with stone; the right treatment of brickwork, therefore, is to him a matter of vital importance. The drawings which we published last week by students of the Evening School are an illustration of the facility in handling the humbler material gained by the course of instruction; the study in traditional English stonework which illustrates this article will show with what sanity national limitations are approached. That the practical aspect of architecture is not developed at the expense of the æsthetic is shown by the fact that a student, after completing his four years at Westminster, has just been admitted into the Ecole des Beaux-Arts, passing the examination with great credit; while another old student has succeeded in passing into the first class of the Ecole in the shortest available time, having gained several distinctions in the second class. The studies for a "National Valhalla for Explorers," worked out by Fourth Year Evening Students, are, again, a convincing proof that the students are not incapable of flights of academic daring when the occasion requires it. Of these designs the most striking is that by Mr. P. Hepworth, which we intend to publish shortly. By the same author is a "Scheme for the Decoration of a Public Hall." The ½-in. detail is excellent, but the perspective in colour is rather sloppy. The shafts of Verd-antique would have a fine effect in execution. A full-size study for plaster decoration shows that Mr. Hepworth can draw as well as design. One of the few Valhalla schemes which do not draw their inspiration from Greek work is that by Mr. H. A. Gold. Mr. Durnford's dome is as overpowering as that of the Capitol at Washington. Mr. O. Hill requires too much of the Greek Doric Order; it is a mistake to link an architectural feature so uncompromisingly trabeated to arched forms of construction. The section of his domed central chapel shows how impossible it is to follow the idea out in the interior. Mr. Harold E. Moss has, at any rate, been more consistent in perching the mausoleum aloft as his central feature. This gentleman shows himself to be an accomplished draughtsman, though we doubt the wisdom of reverting to the principles on which the steeple of St. Pancras and many other works of the same period were constructed. He might, by the way, have been more consistent still, and refrained from a Latin inscription on a Hellenic building. The most original and, unfortunately, one of the least successful schemes is that by Mr. A. W. Robertson. The great defect is the loss of scale produced by the colossal windows. The draughtsmanship is excellent, but the style seems hardly suitable for a monumental conception of this nature. The same student's "Design for a Customs House and Bridge" is much better. The plan makes a very attractive sheet. Mr. H. E. Moss has made an attractive design for this subject. The elevations, as seen from the roadway of the bridge, are not so good as the river elevations; the central archway does not seem to possess sufficient abutment to satisfy the eye. The covered footways are a pretty feature. The subject has been thoroughly worked out by all the students; indeed, it was as much an exercise in building in water as in æsthetics. The Third Year Evening School work makes a good display. Mr. H. V. C. Curtis's "Design for a Park Entrance" is very nicely drawn, but the central gate-pier was a mistake. The colonnade, too, is dwarfed in size to a mere stone railing. The "Design for an Architectural School" was among those illustrated in our last issue. Mr. C. W. Rogers has spoiled a bright perspective of his "Entrance to a Provincial Town" by an ill-drawn figure. The design is not a bad one, smacking somewhat of Sanmicheli's Porta del Palio at Verona, but more of London's latest essay in triumphal (if rather utilitarian) arches. A "Design for a Picture Gallery," by Mr. G. F. Rowe, is a scholarly piece of work, though it is hard to believe that a "Design for a Park Entrance" is by the same hand. Mr. Rowe has not done himself justice in this latter scheme. One of the best of these park entrances is Mr. A. S. G. Butler's; of the worst, we can say that it might be still worse. In the Second Year Evening School, Mr. G. W. Stuart is represented by three very workmanlike schemes. The "Study for a Roman Basilica" in brick and stone we published last week. A "Study for a Village Church" is a good piece of draughtsmanship, though we cannot help remarking that Gothic feeling seems to have gone with the passing of the revival. A "Study for a Greek Agora" is extremely conscientious. The freehand drawing of ornament by the First Year Evening School is excellent.

The work of the Day School, though, of course, of a less-advanced type, presents much that is interesting. The final test study of the Second Year course was a "Design for a Pavilion in a Garden." For this subject thirty-six hours was allowed. The materials were to be brick or stone, but not used together. Four sheets were required, ½ scale plans, elevations and sections, ⅛ general scheme; ½-in. detail, and perspective sketch. A sketch-plan was given of the adjoining mansion, and the lay-out of the garden terrace formed a part of the test. Mr. A. E. Maxwell's design, which was placed first,

we intend to illustrate in a future issue. The design of Mr. Ford, placed second, shows marked classical tendencies; it says much for the soundness of the training afforded by the School, that a student should be so well able to put his knowledge of the Orders into practice without the assistance of books. In some respects, the most brilliant scheme is that by Mr. R. C. Anson, who has imagined his pavilion to stand on the brow of a low cliff by the seashore. A set subject in English Renaissance, a "Study for a Market-hall," has been realised best, perhaps, by Mr. A. E. Maxwell, who shows himself to be a facile draughtsman. A "Study in Garden Planning," by Mr. G. Shuffrey, is excellently set forth in a pencil perspective. Mr. R. C. Stevenson's "Study for a Roman Basilica and Forum" is, perhaps, the most successful essay in this subject. Following the system pursued at Dotheboys' Hall, the student first learns his lesson, and then "goes and does it." Thus the Roman Basilica was the outcome of a visit to Colchester, and the study in garden planning was preceded by a visit to Kew. In the same manner the construction sheets exhibited are not transcripts from text-books, but the fruit of first-hand study; masonry is demonstrated by a master-mason, carpentry by a carpenter, and the other branches of the art of building on the same principles. It may not be out of place here to express our entire disagreement with the opinion occasionally mooted that "pretty drawing" is the main outcome of the course of study afforded by the Architectural Association Schools. That men who have been trained at Tufton-street can, and do, turn out "pretty" drawings is no shame to them, but rather the reverse; that problems of construction are unflinchingly studied and tackled their most prejudiced critic must admit, if he will but take the trouble to see for himself the work that is being carried on in the Schools.

The following is the list of awards and prizes:—

DAY SCHOOL.

First Year Awards.

Book Prize for first place in History Test Paper and general excellence in this subject: G. Fildes.

Book Prize for first place in Construction Test Paper and general excellence in this subject: G. Fildes.

Hon. Mention: C. M. Cooper and D. E. Cruickshank.

Geometry, first place: N. S. Robinson.

Physics first place: M. Day

A.A. Sketch Book for first place in Free-hand Drawing Test: C. M. Cooper.

The Studio Prize.

Best Portfolio of Drawings made during session: C. M. Cooper and D. J. Gordon.

Authors of drawings selected for School Portfolio: C. M. Cooper, D. E. Cruickshank, H. D. Archer, W. Harkess, and D. J. Gordon.

Second Year Awards.

Travelling Studentship, value 15*l.*, for Studio and Lecture work during session 1909-10, holiday work, and general progress: T. F. Ford and R. C. Stevenson, with special recommendation to the Council.

Specially commended: T. F. H. White.

Hon. Mention for general progress during session: F. C. Anson, E. L. Apperley, J. E. M. Macgregor, J. E. D. Manlove, A. E. Maxwell, and A. B. L. Roberts.

End of Session Test.

(Prize offered by the Master, H. P. G. Maule).

Subject: A Pavilion in a Garden, set by Mr. Arthur Keen (President).

Study placed first: A. E. Maxwell.

Study placed second: T. F. Ford.

Study placed third: R. C. Stevenson.

Hon. Mention: F. C. Anson, W. A. Cole Adams, J. E. D. Manlove, A. B. L. Roberts, G. Shuffrey, T. F. H. White.

Drawings selected for presentation to School Portfolio: From prize winners and those above mentioned and H. M. Whitehead and G. Shuffrey.

Students recommended for the Association Two Years' Course Certificate: F. C. Anson, E. L. Apperley, T. F. Ford, J. L. Howe, J. E. M. Macgregor, J. E. D. Manlove, A. E. Maxwell, A. B. L. Roberts, M. Robertson, C. Rowntree, R. C. Stevenson, L. Shuffrey, F. P. Spooner, T. F. H. White, H. M. Whitehead, L. M. Yetts, and B. H. B. Symons-Jeune.

EVENING SCHOOL.

First Year.

Book Prize, value 2*l.* 2s.: Kenedy Smith.
Master's Prize: J. B. M. Walch.

Second Year.

Scholarship, value 15*l.* 15s., free pass to third year: G. W. Stuart.

Book Prize, value 2*l.* 2s.: E. L. F. Davey.

Third Year.

Scholarship, value 15*l.* 15s., free pass to fourth year: H. V. C. Curtis.

Book Prize, value 2*l.* 2s.: F. A. Crouch; G. F. Rowe.

Master's Prize for hardest worker: C. W. Rogers.

Hon. Mention: H. R. Peerless, B. P. Gaymer, and M. S. Daly.

Fourth Year.

Travelling Studentship, value 15*l.*: P. D. Hepworth.

Book Prize, value 2*l.* 2s.: H. A. Gold.

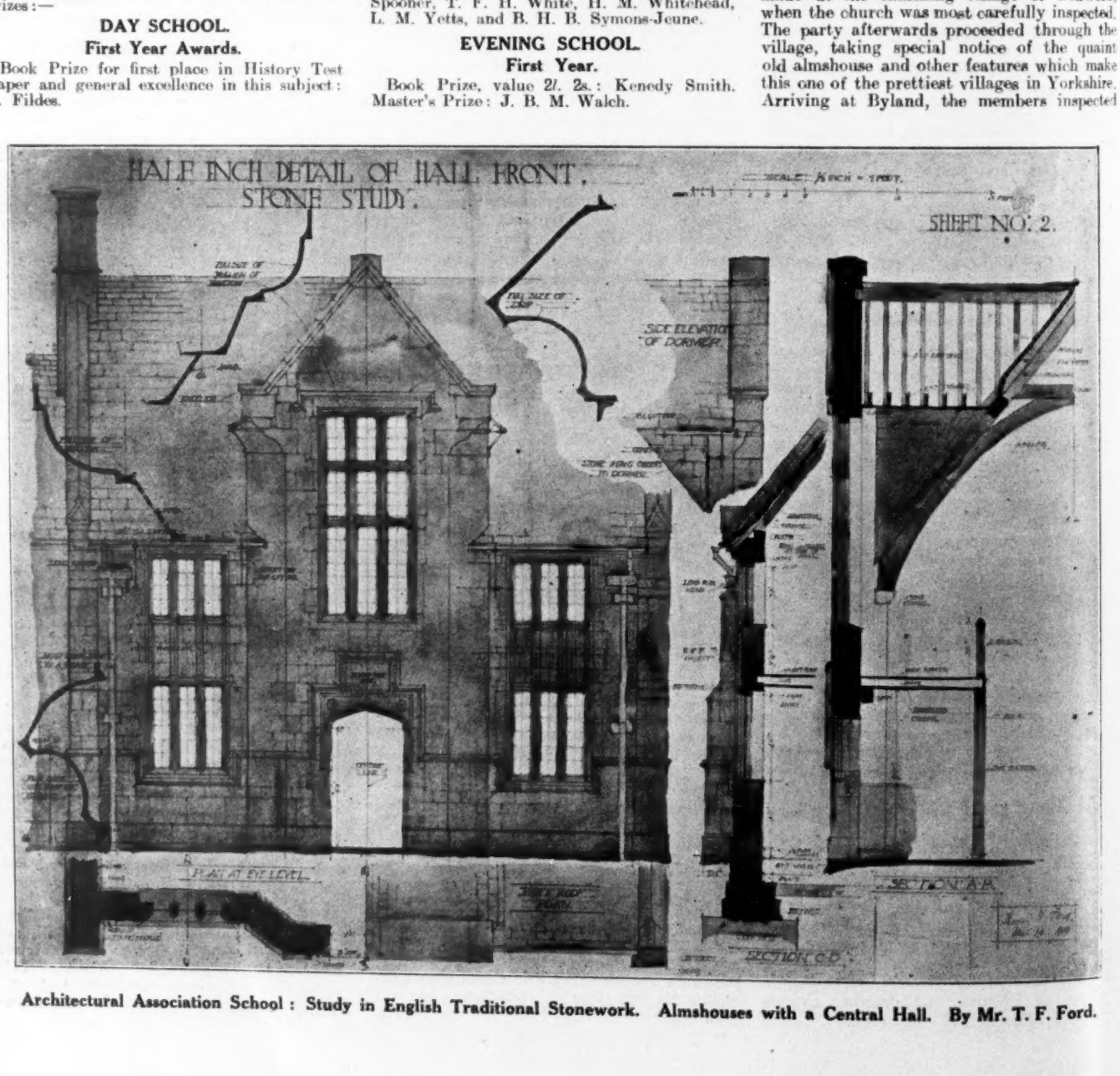
Master's Prize for hardest worker: W. J. Durndord.

Hon. Mention: O. Hill, A. W. Robertson, B. P. Collin, and H. E. Moss.

ARCHITECTURAL SOCIETIES.

Northern Architectural Association.

The annual excursion of this Association was held on the 14th inst., when, after an interval of sixteen years, the members again visited Byland and Rievaulx Abbeys. Included in the party were Mr. H. C. Charlewood (President); Mr. W. Milburn (Vice-President); Messrs. J. Oswald, F. W. Rich, J. W. Taylor, A. B. Plummer, and G. T. Brown (past-Presidents); Mr. C. S. Errington (Hon. Secretary); and Messrs. J. Bruce, T. R. Milburn, W. J. Moscrop, H. Oswald, A. K. Tasker, J. A. Lofthouse, H. L. Hicks, J. Forbes, T. B. Cubly, R. R Shipley. The party assembled at Thirsk Station, where the motor char-a-banc provided was in waiting to convey members on their tour of inspection. The first stop was made at the charming village of Coxwold, when the church was most carefully inspected. The party afterwards proceeded through the village, taking special notice of the quaint old almshouse and other features which make this one of the prettiest villages in Yorkshire. Arriving at Byland, the members inspected



Architectural Association School: Study in English Traditional Stonework. Almshouses with a Central Hall. By Mr. T. F. Ford.

the ruins of the abbey before proceeding to Helmsley, where the church, the castle, and the old houses in the market place proved most interesting. The ruins of Rievaulx Abbey were afterwards inspected under the most delightful weather conditions and a cloudless sky, and on the return journey a call was made at the interesting old Church of St. Oswald, at Oswaldkirk. The members dined at the Fleece Hotel at Thirsk in the evening.

ARCHÆOLOGICAL SOCIETIES.

Bucks Archæological Society.

The annual excursion of this Society was held on Tuesday, the 19th inst. The town of Buckingham was the starting point, and after visiting the modern parish church—a good example of Sir Gilbert Scott's earlier work—a halt was made at Castle House. The part fronting the main street is an excellent example of the domestic work of the Wren period, built in local brick and stone materials, and although the good effect is somewhat marred by the machine-made roofing tiles, the design is full of interesting detail. The central recess has a large pediment, and four windows to the upper story. Two door features are linked together on the ground floor, in place of the usual single entrance. The rear part of the house contains some fine Tudor work in the so-called great dining-room. Stone-mullioned windows, oak-framed ceilings, with shaped struts and moulded beams are the characteristic elements of an attractive interior. A charming garden, well laid out on the hilly site, gives an ideal setting to the whole.

The Chantry Chapel of St. John, until recently used as the "Royal Latin School," was the next building to be examined. Here the Norman south door, the windows, the roof, and XVIIth-century carved oak bench-ends claimed chief attention. Efforts are being made to secure the building for the perpetual use and enjoyment of the inhabitants of the town.

Maid's Moreton Church, the first halt after lunch, is one of the best churches in the county, and belongs entirely to the XVth century. The nave is lofty, and has long north and south windows, somewhat unusual in size for an edifice of this scale, but absolutely satisfying to the comfort of the interior. The chancel has considerable dignity, with its large east window. The little stone vaulted chantry on the south side is perfect, but we have little hesitation in saying that the modern vestry connected with it should never have been allowed to be erected. The sedilia, the north fan-vaulted porch, the screen, and the oak roofs are beautiful specimens of their respective kinds. The general character is of distinctive quality, and this is particularly noticeable in the vigorous stone treatment of the tower and other features.

The scene of the final visit was the well-known Stowe House—one of the great mansions and estates of England. The house as it now stands was completed shortly after the middle of the XVIIIth century, and measures over nine hundred feet in length. Although it is the joint production of some of the better-known architects of that era, it would appear to have followed rather than to have led what proves to have been the fashions of Georgian times. The main and garden entrances are through large Corinthian porticos. On each side of the former, or south entrance, is a large concave colonnaded wing screening the offices, stables, and other outbuildings. The outer hall is interesting as affording a foil to the larger scale within. The inner hall is a magnificent lofty oval-shaped apartment, the major axis of which is parallel with the great length of the house. The top light of the glass cupola throws up the richness of the elaborately-coffered oval dome, which rises from a bold frieze of figures in full relief, representing military incidents. Below this frieze is a heavy main cornice, carried by a series of Corinthian scagliola columns, and the whole effect is at once striking and dignified. From this hall direct access is obtained to the great state rooms east and west, the whole of which face north. A singular aspect of Stowe is that it possesses no grand staircase such as is found in kindred mansions. The means of reaching the upper and lower levels is somewhat meagre, and is due probably to the fact that the house as now seen is the result of various periods of building by many architects. What is lacking in this respect, however, is amply compensated for by the regal magnificence of the state rooms. These are of varying yet typical forms and sizes. The largest are the library and dining-room, each of which is over seventy feet long, and of generous width and height; others are square yet proportionate to the whole suite, which is of the large cornice and coved ceiling order, ornate to a degree and embellished with painted panels. An unusually fine vista is obtained through the doorways of these apartments and across the top-lighted inner hall.

As in all the great houses of this period, there is a large vaulted basement story at the ground level. The armoury and Gothic library are interesting, but the chief place is the private chapel, which is panelled in cedar and carved in the Wren and Gibbons manner. Here the general absence of paint is refreshing.

The orangery, the garden museum, with its two aviaries, the flower gardens, the stone temples, the avenues, the canals, bridges, and gateways are all details of an enormous scheme, the lay-out of which is too complex to attempt to describe in the space at our present disposal. The courtesy of the owner in throwing the house open to the visitors was greatly appreciated.

Surrey Archæological Society.

The fifty-sixth annual excursion of this Society took place on July 7 at Oxted, in Surrey, and other places in that neighbourhood. Assembling in Oxted Church, Mr. P. M. Johnston, F.S.A., architect, said there was a record of this church in 1637, and in 1719 it was struck by lightning, when the spire was burnt and the roof and chancel were destroyed by fire. Evidence remained of the early walls having been raised in the "churchwarden period." A Norman and Saxon church formerly stood on this site; it is mentioned in Domesday Book. The present edifice contains a tablet of 1630, on which rests one of the most beautiful angel heads in England. Barrow Green House was the next place visited, by kind permission of its owner, Mr. W. V. Blake McGrath. Here Mr. M. S. Giuseppi, Hon. Secretary, read some notes written by Mr. C. Hoskins Master respecting the Hoskins family, the freeholders of the house. The house contains a fine Elizabethan fireplace, on which are carved the arms of the Hoskins family, surmounted by the Royal Arms of King James I. Subsequently a visit was made to De Tillens, a mediæval house in Limpsfield, which Mr. P. M. Johnston said contained a large hall of 1440. Limpsfield Parish Church was the next rendezvous, and here Mr. Johnston said that though this church was referred to in Domesday Book, yet one fails to find any evidence of Norman work. The first addition was probably the tower, erected about 1170 or 1180. The nave roof is an admirable specimen of ancient Surrey carpentry. An essay, with ground plan and other illustrations, of Limpsfield Church, by the late Major Alfred Heales, F.S.A., is to be found in the fourth volume of the *Transactions* of this Society. The party was then driven to Tatsfield, and the church visited, it being described by Mr. Johnston. This church, he said, rejoices in the possession of one of the very few positive relics of the Norman period in the form of the window in the north wall of the nave. In the south side of the nave are concealed the remains of the original floor of this church. Titsey was the next place visited, and this was Titsey Place, the seat and grounds of Mr. G. C. Leveson Gower, by his kind invitation. Here the Roman villa was inspected, and described by Mr. Mill Stephenson, F.S.A. He said that the building was used as a "fulling workshop," the "fulling" process going on in one end of the villa and the drying process at the other end. In the work of excavation carried on by the late Mr. W. Leveson Gower numerous objects were found. After an inspection of Titsey Church the meeting separated.

CLOCK, EDMONDTHORPE, NEAR OAKHAM.—A large clock with two dials and chiming the quarters has been fixed in the parish church by Messrs. John Smith & Sons, Midland Clock Works, Derby.

ENGINEERING SOCIETIES.

Association of Consulting Engineers

A meeting, presided over by Sir William Preece, K.C.B., F.R.S., the Past-President of the Institution of Civil Engineers, was held recently to consider the desirability of forming an Association of Consulting Engineers, the object of the Association being (*a*) to form a recognised group of *bonâ-fide* independent consultants who would constitute a body for the protection of their interests and the interests of the public generally, and (*b*) to improve their status and professional position.

Invitations had been issued to a number of consulting engineers at the instance of a Provisional Committee, and most of the prominent consulting engineers were represented or sent letters expressing regret at their inability to attend and their sympathy with the movement. Mr. Midgley Taylor said that the subject had been before several consulting engineers for the past two years or more, and, as some initial step had to be taken, the members who originally took the subject up formed themselves into a Provisional Committee. The object of the meeting was to see whether the general idea of the formation of the Association met with the approval of the consulting engineers in this country. It was necessary, in the interests of the public as well as in their own, that the genuine consulting engineer should be distinguishable from those who were not genuine consulting engineers, but had trade interests. He felt that the public also wanted protecting. At the present time if a municipal authority erected works, even of large magnitude, they were not compelled to employ a qualified man to advise them, and there was nothing to prevent an absolutely unqualified man going to the particular authority, offering his services, and being retained. Under those circumstances he felt they should endeavour to form an association such as would not only protect the *bonâ-fide* consulting engineer, but would also protect the various public bodies and persons in this country who were anxious to get a properly-qualified man to advise them on engineering works.

Mr. Swinburne formally proposed that the Association should be formed.

After some discussion, Sir William Preece, as Chairman, said that he was in entire sympathy with the movement. He put the resolution to the meeting that the Association be formed, and this was carried unanimously. It was then suggested that the following gentlemen should be asked to form a Committee:—Messrs. Robert Hammond, C. Hunt, B. M. Jenkin, Baldwin Latham, S. R. Lowcock, E. L. Mansergh, W. M. Mordey, W. H. Patchell, Sir Wm. Preece, Henry Rofe, J. F. C. Snell, E. H. Stevenson, James Swinburne, Midgley Taylor, and Henry Woodall.

This Committee was unanimously elected, and Mr. A. H. Dykes, of 1, Victoria-street, Westminster, S.W., was elected as Honorary Secretary.

JAPAN-BRITISH EXHIBITION.

THE following is a list of the Grand Prize, Diploma of Honour, and Gold Medal awards at the Japan-British Exhibition so far as they relate to building and the allied arts:—

W. F. Stanley & Co., Ltd., Great Turnstile, W.C.—Surveying instruments.

New Zealand Government Department of Public Works—Timbers.

The Thames Ironworks Shipbuilding and Engineering Company, Ltd., 17, Philpot-lane, E.C.—Collective exhibit.

Waring & Gillow, Ltd., 164-180, Oxford-street, W.—Furniture, etc.

The Gas Light and Coke Company, Horseferry-road, S.W.—Bye products of gas manufacture.

Robt. Ingham, Clark, & Co., Ltd., St. Helen's-place, E.C.—Varnishes and enamels.

Corticine Floor Covering Company, Ltd., 152, Aldersgate-street, E.C.—Corticine.

J. H. Beamish, New Zealand—Prismatic glass roofing.

The Gas Companies' Joint Exhibit Committee, Horseferry-road, S.W.—Collective exhibit.

Shand Mason & Co., 75, Upper Ground-street, Blackfriars-road, S.E.—Fire extinguishers.

W. B. Haigh & Co., Ltd., Globe Works, Oldham—Wood-working machinery.

George Rowney & Co., 10-11, Percy-street, W.—Artists' colours, pencils, and mathematical instruments.

Donaghys Rope and Twine Company, Ltd., New Zealand—Rope and twine

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James Maddren, New Zealand—Binder rope and twine.

The Hydraulic Engineering Company, Ltd., Chester—Hydraulic machinery.

Clayton, Son, & Co., Ltd., Moor End, Hunslet, Leeds—Welded steel pipes.

Robert S. Allan & Co., Victoria-buildings, Gateshead—Wood-working machinery.

British Uralite Company (1908), Ltd., 85, Gresham-street, E.C.—Fireproof building material.

Saxon Portland Cement Company, Ltd., Cambridge—Portland cement.

John Dugdill & Co., Failsworth, near Manchester—Moving and extending fittings.

The Maxim Lamp Works, Ltd., Maxim Works, Walthamstow—Flame and enclosed arcs and M.F. lamps.

Story & Co., 49-53, Kensington High-street—Furnishing fabrics.

London Warming and Ventilating Company, Ltd., 20, Newman-street, W.—Anthracite stoves.

A CATALOGUE.

CONCERNING the catalogue under review—that of Mr. John P. White, of Bedford—many charming things have been said and much appreciation has been bestowed in the columns of our contemporaries devoted to architecture, country life, and art. But we would offer this consideration:—That here

An Oak Foot Bridge at Eaton Hall, designed by Mr. C. E. Mallows.

A Garden Pavilion, Oakley House, Beds.

we have not only the travelling Trade Guild restored, but the influence of the individual extended, over correspondingly numerous pitfalls, to a radius and in a degree impossible of attainment under any older way. Mr. White has to decide what he will and what he will not offer to his patrons. He it is, we presume, who chooses what designs and which designers he will employ; and it is only on a basis of catholic taste and sound workmanship that a reputation such as he has can be founded.

Consider the graceful bridge (a photograph of which is reproduced herewith) by Mr. Mallows, and perhaps one might take with it the "Osaka Bridge" in the catalogue. In both these designs—of which the one given, as far as one may judge from photograph and drawings, seems to be the more considered and finished—a slight reminiscence of Tudor feeling peeps out in "baluster" and "newel," whilst the European is betrayed, as far as design goes, in the incidence of the coupled "newels" on the points of support, a circumstance which, it is true, might happen in Japanese work, though it would not so inevitably occur as in work of European origin and feeling. There are probably structural differences also; we in England need learn little from the Japanese on that score.

But here, surely, is the individuality of the artist seen to emerge, even through the most unwonted forms; not insistently as in the old furniture books—the present catalogue in point of personality and dogmatic tyranny of taste can in no way compare with the volumes of Chippendale and the brothers Adam (latter-day conditions do not permit of it)—but appealingly and anonymously as in the older method of the wandering Guild. With this advantage over artists of the Guild, that whereas their fame spread by hearsay and their opportunities for individual triumph came more by chance, the designers represented in this catalogue enjoy an opportunity of being found by those with whose work and taste their design is in accord greater than has hitherto been known. So we have our three individual factors, each contributing towards the realisation of an harmonious result—First the merchant who as ever is the medium of exchange, and in this case performs also the functions of censor, excluding the bad, and the foreman ensuring good workmanship; secondly the client, who, being given a choice within excellent limits,

Japanese Bridge at Kameido.

Japanese Bridge at Nikko.

must yet exercise his individual taste, and should possess some culture; and, thirdly, the artist, desiring, as ever, a suitable setting for his work. The order in which we have put these three may, by those who think in that direction, be easily reversed.

The other photographs we reproduce are of two actual and exceptionally fascinating bridges, at Kamiedo and at Nikko in Japan, which are included in the catalogue, and a little pavilion, adapted from a Japanese design, in the garden of Oakley House, Beds. The roof is painted red, and the rest is green and white. It is 19 ft. 6 in. long, and including the verandah (6 ft.) is 14 ft. deep. We must not omit to mention some characteristic drawings by Mr Mallows, which add considerably to the distinction of this catalogue.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held at the County Hall, Spring-gardens, S.W., on Tuesday. Mr. Whitaker Thompson, the Chairman, presided.

LOANS.—Sanction was given to the borrowing by the Battersea Borough Council a sum of 9,863*l.* in connexion with their electricity undertaking; the Deptford Borough Council, sums of 1,790*l.* and 16,482*l.* for paving and other works; the Lambeth Borough Council, 9,854*l.* for paving; the North Surrey School District Managers, 4,000*l.* for alterations, etc., to the boiler and steam plant at the school at Anerley; the Stepney Borough Council, 9,625*l.* for electricity mains; the Wandsworth Borough Council, 8,225*l.* for paving and a contribution towards cost of street improvement; the Woolwich Borough Council, 1,018*l.* for contribution towards a street improvement, and a further sum of 811*l.* paving works and street improvements.

NEW SCHOOLS, ETC.—The Education Committee made the following recommendations, which were agreed to:—

That expenditure on capital account of 600*l.* in respect of the preliminary expenses in connexion with the preparation of the particulars for the contract for the erection of a secondary school to accommodate 456 girls on the Highgate-road site (St. Pancras, N.) be sanctioned.

That expenditure on capital account of 500*l.* in respect of the preliminary expenses in connexion with the preparation of the particulars for the contract for the erection of a secondary school to accommodate 468 girls on the Ancona-road site (Woolwich) be sanctioned.

That expenditure on capital account of 132*l.* in respect of the fittings required for the practical science rooms at the Camden-street Central school (St. Pancras, E.) be sanctioned.

That expenditure on capital account of 360*l.* in respect of taking out and lithographing quantities, and of professional charges, in connexion with the rebuilding of the Great College-street school (St. Pancras, E.), for the accommodation of 1,125 children, be sanctioned.

That expenditure on capital account of 365*l.* in respect of taking out and lithographing quantities, and of professional charges, in connexion with the structural improvement of the Hamond-square school (Haggerston) be sanctioned.

That expenditure on capital account of 500*l.* in respect of taking out new quantities, etc., in connexion with the revision of the plans for a new training college and hostel on the "Furzedown" site, Wandsworth.

That expenditure on maintenance account not exceeding 129*l.* in respect of the partitioning of the handicraft centre at the Beaufort House school for elder mentally defective boys (Fulham), so as to provide accommodation for three classes, be sanctioned.

That, subject to the capital votes containing the necessary provision therefor, a grant of 20,000*l.* be made to the governors of the Regent-street Polytechnic towards the cost of rebuilding the front of the polytechnic premises, Nos. 307, 309, 311, and 311A, Regent-street.

HOXTON HOUSE SCHOOLS.—On October 26 last the Council referred to the Education Committee tenders for erecting certain schools and centres on the Hoxton House site, and on December 14 the Council accepted the tender of Messrs. W. Johnson & Co., Ltd. Delay in connexion with the acquisition of the site and the demolition of the old buildings, however, prevented the issue to the contractors until February 23, 1910, of the order to commence. In the interval which elapsed between October 26 and this date Messrs. Johnson & Co. notified the Council that the price of bricks had risen, and that rain-water pipes, gutters, and similar castings had also advanced in price since the delivery of the tender. The contractors had made a claim amounting to 110*l.*, and the Committee recommended that this be agreed to.

WOOD-BLOCK FLOORING.—At the previous meeting the Council decided that, as a matter of urgency, wood-block flooring work at two London County Council schools should be carried out by Messrs. Hollis Brothers & Co. at the prices quoted in their tender, dated May 2, 1910, for grooved and tongued blocks, and at ten London County Council schools by the Acme Flooring and Paving Company (1904), Ltd., at the prices quoted in their tender, dated May 3, 1910, for Rio quality dowelled blocks. The Education Committee reported that they were advised that it would be necessary to carry out such work at ten additional schools before the Council resumes its meetings after the summer recess, and recommended, therefore, that the Chairman of the Buildings Subcommittee should be authorised to determine to which of these firms orders should be given for any work which may be required.

MINOR SCHOOL WORKS.—On the recommendation of the Education Committee it was agreed—

That the tender of Messrs. W. Chappell, amounting to 379*l.* 15s., be accepted for painting at the New-end school, Hampstead.

That expenditure on capital account not exceeding 100*l.* in respect of the provision of the furniture and fittings required for the physics laboratory and balance-room at the extension of the London County Council School of Building (Brixton) be approved.

That expenditure as follows be sanctioned for carrying out minor improvements at the undermentioned schools; and that the work be executed during the summer holidays by the contractors for repairs to school buildings on their contract schedules of prices:—(i.) Alexis-street (Bermondsey), 544*l.*; (ii.) Cobourg-road (Camberwell, N.), 872*l.*; (iii.) Lillie-road (Fulham), 855*l.*

APPOINTMENT OF CLERKS OF WORKS.—The Education Committee recommended, and it was agreed—

That sixteen additional clerks of works be temporarily engaged, each at a rate of pay not exceeding 3*l.* 13s. 6d. a week, eight for a period of five weeks and eight for a period of eight weeks, in connexion with painting and cleaning work and structural alterations at Council schools.

IMPROVEMENT OF KING'S-ROAD, CHELSEA.—The Improvements Commmittee recommended—

That expenditure on capital account of 950*l.* in respect of the widening of King's-road, Chelsea, to the west of Gunter-grove, be approved, subject to the Chelsea Metropolitan Borough Council agreeing to contribute one-third of the net cost, and also to give any necessary consents to the introduction of Bills to authorise the Council to construct a tramway in the portion of the thoroughfare proposed to be widened.

This was agreed to.

DIVERSION OF NORTHERN LOW-LEVEL SEWER, MILLBANK.—The same Committee recommended, and it was agreed—

That the offer of Messrs. J. Mowlem & Co., Ltd., to execute for the sum of 10,350*l.* the work of diverting the northern low-level sewer beneath Millbank shown on the plan (registered No. 2,318) and in accordance with the Council's specification and the priced bill of quantities accompanying the company's offer be accepted.

ADDITIONS TO THE HORNIMAN MUSEUM.—The Local Government, Records, and Museums Committee, reporting on the subject of the new lecture-hall and library which Mr. E. J. Horniman has undertaken to provide at the Horniman Museum, stated that the preparation of drawings and of bills of quantities in connexion with the building is being proceeded with, and by the end of August it will probably be found possible to invite tenders. In order that there may be no delay in proceeding with the work, the Committee suggested that tenders should be invited from selected firms, and, further, that they should be authorised to open the tenders received during the summer recess.

The Council agreed.

REPAINTING, ETC., AT SEWAGE WORKS.—The Main Drainage Committee recommended, and it was agreed—

That expenditure not exceeding 500*l.* be sanctioned for painting the overhead sludge tanks at the Barking outfall works; that tenders for the execution of the work be invited from selected firms; and that the Main Drainage Committee be authorised to accept, during the summer recess, the most favourable tender received.

That the purposes of the maintenance vote of 55,100*l.* in respect of Barking outfall be enlarged so as to include the work of repairing the wooden troughs on the 1-acre coke-bed at the Barking outfall.

PARK SHELTER.—On the recommendation of the Parks Committee it was agreed to accept the tender of Messrs. John Barker & Co., Ltd., amounting to 117*l.*, for the erection of a shelter at Wandsworth Park.

SUPPLY OF GRAVEL.—It was also agreed, on the recommendation of the same Committee, to expend a sum not exceeding 2,070*l.* for the purchase of gravel and other materials for repairing, during the winter of 1910-11, roads and paths at certain parks, gardens, and open spaces.

ANNUAL PAINTING, REPAIRS, ETC., AT THE CENTRAL OFFICES.—On the recommendation of the Establishment Committee it was agreed—

That expenditure not exceeding 2,032*l.* be sanctioned for the annual cleaning, painting, repairs, etc., required at the central offices; and that the work be done as jobbing work.

That expenditure not exceeding 446*l.* be sanctioned for the external painting work required at the County Hall and Nos. 8, 10, 12, and 14, Spring-gardens, No. 6, Waterloo-place, and No. 40, Craven-street; and that the work be done as jobbing work.

VENTILATION OF THE CENTRAL CAR DEPÔT.—It was agreed, on the recommendation of the Highways Committee, that certain alterations should be made to the louvres fitted to the roof of the first section of the central car depôt, and that the work should be carried out by Messrs. Charles Wall, Ltd., as an extra on their contract for the erection of the second section of the depôt.

LAW REPORTS.

KING'S BENCH DIVISION.

(Before Mr. Justice A. T. LAWRENCE.)

Architect's Action for Wrongful Dismissal.

Hodge *v.* Urban District Council of Matlock Bath and Scarthin Nick and Nuttall.

THIS was an action brought by the plaintiff, an architect, for damages against the defendants for alleged wrongful dismissal, and came before the learned judge on the 16th inst. for further consideration, the case having been heard before his lordship and a jury recently at the Derby Assizes.

The facts of the case were as follows:—At a meeting of the defendant Council a verbal resolution was passed (the plaintiff being present) that the plaintiff and a Mr. Nuttall should be employed as the joint architects for the erection of a kursaal, and the plaintiff in accordance with the resolution prepared plans and for a time did work in pursuance of the resolution; but before the work was completed the plaintiff was dismissed. At the trial at the assizes the jury returned a verdict for the plaintiff; but as the main defence relied upon was that in any event the plaintiff could recover nothing, as the contract under which he was employed was not under the Council's seal, the case was now argued upon that point of law.

Mr. Shearman, K.C., and Mr. Grimwood Mears (instructed by Messrs. Thwaites & Thompson) appeared for the plaintiff, and Mr. Hugo Young, K.C., and Mr. Sandlands (instructed by Messrs. Rye & Eyre) for the defendants.

Mr. Shearman contended that as the Council had had the benefit of the contract, and that as the work done had been

necessary and had been accepted, they must pay, although there had been no seal. He submitted that a seal was only necessary where a local authority was acting under sect. 174 of the Public Health Act, 1875, and in the present case the Council was erecting the kursaal under a private Act, and not under the Act of 1875 at all.

Mr. Hugo Young on behalf of the defendants contended that the contract was one which required to be under seal. In the present case, no doubt, the work had been ordered, but it was not for the purpose of doing something the Council was obliged to do, for the private Act merely said that they "might," not that they "must," erect a kursaal. As the works had never been completed, the Council had not had the whole of the benefit contemplated. He submitted that if a seal was required nothing could be recovered on a *quantum meruit*.

His lordship in giving judgment, after stating the facts, said that, as the resolution employing the plaintiff was not under seal, the plaintiff could not succeed in an action directly based on it for breach of contract or wrongful dismissal. He was of opinion, however, that the plaintiff's contention was right, that, as the defendants had had the benefit of his work, he could recover the sum of 230*l.* which the jury had found he would be entitled to. Here the benefit had been received not only by the Council, but also by the individual inhabitants of the district. He accordingly entered judgment for the plaintiff for 230*l.* and costs, except as to the issue whether the contract was under seal.

A stay of execution was granted with the view to an appeal by the defendants.

HIGH COURT OF JUSTICE.
CHANCERY DIVISION.
(Before Mr. Justice JOYCE.)

Alleged Nuisance by Early Building Operations.
Clark *v.* Lloyds Bank, Ltd.

THIS case came on for hearing on the 15th inst. on a motion by the plaintiff for an injunction to restrain the defendants from proceeding with any work either of construction or demolition upon the site of premises in St. James's-street so as to cause a nuisance or annoyance to the plaintiff or injury to his business.

The facts of the case were as follows:—Plaintiff was the proprietor of a private hotel in Bury-street, St. James's, holding the premises under a lease from the defendants. Plaintiff's hotel was largely used by members of clubs for sleeping purposes and breakfast only. Defendants owned premises in St. James's-street, which immediately adjoined the hotel, and in March last they commenced to demolish a part of their premises for the purpose of erecting new buildings upon the site, and the plaintiff's case was that the work was carried on in such a manner as to cause a great nuisance, and inflict damage to his business. It was alleged that upon one occasion the contractors for the defendants exploded dynamite at night for the purpose of breaking up stone or cement work in the basement of the premises, and in consequence of the nuisance caused by noise, vibration, and dust, many of the plaintiff's customers left the hotel and went elsewhere. The object of the present motion was to prevent the work being commenced upon the defendants' premises earlier than 7 a.m., the work being usually commenced at 6 a.m.

The plaintiff first applied for an injunction in May last, and the case had been before his lordship on several occasions during the work of demolition, undertakings being given by the defendants from time to time with reference to the hours of carrying on the buiding operations.

Mr. Hughes, K.C., and Mr. Ward Coldridge (instructed by Messrs. Chester & Co.) appeared for the plaintiff; and Mr. Younger, K.C., and Mr. Bryan Farrer (instructed by Messrs. Eardly, Holt, Lightly, & Co.) for the defendants.

At the conclusion of the arguments of counsel, his lordship, in giving judgment, said that he had no doubt that the defendants' work did cause a serious annoyance to the plaintiff, and was very serious to his business. He had tried to induce the parties to come to some reasonable arrangement as to how the work was to be carried on in the early hours; but he had not succeeded. He would have been glad if he could have seen his way to make a similar order to that which was made by Mr. Justice Buckley in the case of Browning & Heseltine *v.* Harrod's Stores (which had been cited to him from the *Builder* reports), where the learned judge had restrained the using of a steam crane before 7 a.m.; but having regard to what the Master of the Rolls said upon the appeal in that case, he did not feel that he could make such an order, though possibly the Court of Appeal might do so. He accordingly dismissed the motion.

The London Building Act, 1894.
Notice of Irregularity Served on the Owner.

ON July 13 Mr. Horace Smith gave his decision in a case heard before him on June 29 at Lambeth Police-court.

The summons was one taken out by Mr. Bernard Dicksee, District Surveyor for Newington, etc., against Mrs. Lidle and Mrs. Napper as "owners" for an order to comply with a notice of irregularity in respect of certain work done to 325, Walworth-road, in the erection of two double-deck bakers' ovens.

The work was executed by Messrs. W. F. Mason, Ltd., of Manchester, to the order of Mr. John Frederick Lidle, the occupier, who was then carrying on business on the premises as a baker. No notice was at that time served, either by the builder or Mr. Lidle or anyone else, on the District Surveyor. The work was discovered by the District Surveyor, who then demanded notice from the builder, which was then given, and on September 6, 1909, the District Surveyor wrote to the builder setting out the irregularities and requiring him to amend them. In reply to this the builder informed the District Surveyor that he had done all the work that he had contracted for, and that he had not been paid for that, as Mr. J. F. Lidle had been adjudicated bankrupt. After further correspondence, the builder gave the District Surveyor formal notice that he had completed his contract and vacated the building on August 10, 1909. It was then found that the millers, Messrs. W. H. Marriage & Sons, of Chelmsford, the mortgagees of the interest of Mr. J. F. Lidle, were in possession; the District Surveyor therefore served on them a statutory notice of irregularity, but it was then found that they had only entered into possession after the irregularity had been committed. On October 27, 1909, the District Surveyor served on the present defendants as "owners" a notice of irregularity. Correspondence with the defendants and their solicitors followed, and, to keep the matter alive and within the six months' limit under the Summary Jurisdiction Act, information for the present summons was laid by the District Surveyor on April 22, 1910, a date for hearing being subsequently fixed.

The relative position of the parties interested in the premises is as follows:—The premises were about twenty years ago granted by the then freeholder to Mr. John Jacob Lidle for a term of ninety-nine years; about eight years ago the said Mr. J. J. Lidle granted a lease for thirty years to his son, Mr. J. F. Lidle, at a rack rent; subsequently Mr. J. J. Lidle died, and the present defendants, together with the son Mr. J. F. Lidle, were appointed executors and trustees. Mr. J. F. Lidle in June, 1909, mortgaged his term to Messrs. Marriage, who on the bankruptcy of Mr. J. F. Lidle entered into possession, and later on took from the trustee in bankruptcy an assignment of the equity of redemption.

The notice on which the summons was based was served under sect. 152 of the Act of 1894, which provides for the service of a notice on "the owner or occupier of the building or structure, or other the person causing or directing or who has caused or directed the work."

It was admitted by the defendants that the irregularities existed, but it was contended that they were not persons on whom an order could be made, as they had not caused or directed the work. It was admitted by them that they came within the definition of "owner" in sect. 5 (29), but it was contended that sect. 152 must be read so that the words "causing or directing" must qualify "owner" and "occupier" as well as "person."

It was contended by the District Surveyor that he had a possible three descriptions of persons on whom he could serve notice—the owner, the occupier, other the person causing or directing the work; that the words "other the person" refer to a different person than the owner or the occupier; that the words used in sect. 152 were not the same as in sect. 145, which required "the builder or other person causing or directing the work to be executed" to give notice; that the owner had power of entry under sect. 192 in order to do the work; that the present defendants were the only persons on whom an effective order could be made, and unless the order be made on them, who had been "owners" all the time, the irregularities must remain uncorrected.

Mr. Horace Smith in giving his decision referred to the consequences of an order to comply with the District Surveyor's notice of irregularity; the Council by sect. 153 (2) might enter and do the work, and the expenses incurred might be recovered either from the person on whom the order was made or from the owner of the premises. The general scope was to give power to recover the expenses against someone or other. This led him to conclude that the words in sect. 152 ought to be read "a notice may be served upon the owner or occupier (whether he has caused the work to be done or not) or upon the person causing the work." The defendants did not cause the work, but as "owners" they were liable notwithstanding. Other points had been touched upon during the hearing, which did not appear to arise on the present summons—whether Messrs. Marriage might not have been proceeded against, whether the bankrupt Lidle might not have been joined in the present summons, or whether the trustees had or had not a remedy against the builder. There might be some hardship upon the two lady defendants, and it might be that Messrs. Marriage were liable; but he had only to deal with the case before him.

The order to comply with the notice within one month was accordingly made. No costs beyond the out-of-pocket expenses were asked for.

COMPETITION NEWS.

A New Garden City, Northwood and Ruislip.

The authorities of King's College, Cambridge, possess estates at Northwood and Ruislip (Middlesex) 1,300 acres in extent, which they propose to develop, and, reluctant to allow the land to be built on indiscriminately, have co-operated in the formation of a new garden-city company. The company has decided to institute a public town-planning competition. Sir Aston Webb and Mr Raymond Unwin have been appointed assessors to judge the competing designs.

Buildings in Swansea.

The Property and General Purposes Committee of Swansea Town Council has had under consideration matters relating to the Castle-street improvement. The Town Clerk is to be instructed to request the President of the Royal Institute of British Architects to advise the Corporation in the appointment of an assessor in connexion with the competition for the elevation of proposed buildings. A sub-committee is to be empowered to conclude terms in regard to remuneration.

CORRESPONDENCE.

Architectural Acoustics.

SIR,—The note in your issue of the 16th referring to architectural acoustics is interesting, and some, at all events, of Mr. Sabine's statements are borne out in practice.

A well-known London architect much interested in theatre work has told me that the acoustic properties of a theatre are always better with a plenum system of ventilation than with a vacuum system, and specially so if the fresh air is admitted at the roof level and extracted at the floor.

Recently, however, owing to fire risks, some authorities are asking for all extraction to be taken towards the stage. This means that all air currents will be *from* the audience *to* the actors, and must certainly affect the

acoustic properties, in spite of Mr. Sabine's statement that "currents of air in themselves have little or no effect on the transmission of sound." S. WHITMORE ROBINSON.

Morieval.

SIR,—In the article on this church in your last issue (p. 77) it is stated that the date of its much-discussed ambulatory "is now generally believed to be between 1110 and 1125." It would, I think, be more exact to say that it is now generally attributed to a date after the translation of relics, which is recorded as having taken place in 1122. M. Lefèvre-Pontalis, who described and illustrated the church in his great work, *L'Architecture Religieuse dans l'Ancien Diocèse de Soissons au XIe. et au XIIe. siècle*, formerly advocated an earlier date (see a summary of the earlier discussion in the *Journal R.I.B.A.*, 3rd ser., vi., 262-264); but in a later description of the church which he published in the volume of the *Congrès Archéologique de Beauvais*, 1905, he expressed the opinion that the ambulatory must be attributed to a date near 1130 (p. 158). The most recent discussion, in which M. Lefèvre-Pontalis gave good reasons for this opinion, will be found in the *Bulletin Monumental*, vols. 71 and 72.

The restoration of the apse was carried out by M. Selmersheim, not by M. Lefèvre-Pontalis, who is not a professional architect, but the President of the Société Française d'Archéologie, and one of the first authorities in France on the architectural archæology of the Middle Ages. JOHN BILSON.

"Wooden Monumental Effigies in England and Wales."

SIR,—In your able review of this work (July 2) you bring into prominence a picturesque detail of Nottinghamshire history given by the author, the truth of which is doubtful. I allude to the following:—"An effigy of a knight, said to be the founder of the church of Radcliff-on-Trent, Nottinghamshire, was existing until the last century, when it met with an untimely end. During the local celebration of one of the victories of the Peninsular War [1808-1814] the populace seized the effigy, dressed it up in an old uniform, and, styling it Napoleon, burnt it in a blazing bonfire."

So far as I have been able to discover, the above statement first appeared in "White's History and Gazetteer of the County," in 1852.

Mr. Laird, in his "History of Notts," 1820, notes that the figure was then in the church:—"The church, dedicated to St. Mary, has a handsome spire steeple, with four bells; the nave and chancel are both spacious, and kept in good order; but the only monument of note is a wooden figure of Stephen Ratcliffe, the founder, which must therefore be very ancient" (p. 212). In a footnote he continues:—"It has been proposed as a question to antiquaries, Why are wooden monumental figures set up in places where stone might have been easily procured? but never answered."

A later local author followed in 1835—preface dated December 20, 1834—in the person of Captain Matthew Henry Barker (who from 1827 to 1838 was editor of the *Nottingham Mercury*) with "Walks Round Nottingham." He says:—"The church, dedicated to St. Mary, stands in a pretty situation; it has a tower steeple and four bells. Under an arch in the south wall is an image cut in oak to represent Stephen Radcliffe, who lies buried below, and I am told he was the person who presented the village with some immunities" (p. 151).

It will be noted that this author goes more into detail than his predecessor for he gives the position of the figure, "in the south wall."

By the above dates we can narrow the appearance and disappearance of this effigy to seventeen years (1835-1852), or to a date well within living memory.

Twenty-two years later than White's story of its disappearance was made public (*i.e.*, in 1874) my late respected friend Mr. Cornelius Brown, author of "The History of Newark," etc., took up the question in his published work "Notes About Notts" as follows:—"There formerly existed in the church of St. Mary at Radcliffe-on-Trent an oak figure, which was placed over the tomb of Stephen de Radclive, who (judging from the fact that he was buried in the wall) was the founder or re-founder of the church. Thornton [1677] thus alludes to this sepulchral monument: 'One of the Stephens, as the tradition is, gave the pasture to the town; he lies in the S. wall of the church, under his image cut in oak under an arch. This is now [1874] a thing of the past. Local tradition asserts that it 'was permitted by the churchwardens to be carried away by the roughs of the village and consumed in the street on November 5 about seventy years ago'—*i.e.*, about 1804" (p. 79).

As the Peninsular War story fails, we may turn to the November 5 one with some show of confidence, and say it was destroyed to make a village holiday on some unrecorded November 5 well within the lifetime, but not the memory, of living men.

It cannot be asserted in this instance that "truth is stranger than fiction," but it may truly be said that the latter, being dressed in the brightest colours, will endure or live on when the former is forgotten.

Alfreton. WM. STEVENSON.

INTERCOMMUNICATION COLUMN.

Steam *v.* Gas for Power.

SIR,—We should esteem it a favour if any of your readers can inform us of the names of any firms who, having used steam for power in their works, have tried gas, and, not finding it satisfactory, have reverted to steam.

E. V. P.

Memorials of the South African War, 1899-1902.

We have received the following from Col. Sir James Gildea, K.C.V.O., C.B., 11, Hogarth-road, London, S.W.:—

I am collecting material with a view to publishing an illustrated record of public and private memorials erected, both at home and in the colonies, to the memory of those who lost their lives in the above war. May I ask for your help and co-operation in making the record as complete as possible, by supplying me with a photograph (and a block of same if such exists) of any memorial, window, screen, tablet, or otherwise, with particulars of inscription, names, etc., thereon, of which you are cognisant? Large photographs should not exceed 6 in. × 8 in., but in the absence of such, or smaller photographs, I should be glad of a picture-postcard. I shall be glad to hear from any architect, builder, sculptor, or designer who has undertaken any memorials in connexion with the above war.

Architects' Assistants in Canada and U.S.A.

SIR,—"Assistant" might be profitably directed to the column which adjoined his letter in your issue of the 9th inst., in which his inquiry appeared, and where an article dealt with the progress of the building trades in San Francisco and Los Angeles, and incidentally with the recovery from the "slump" of 1907-1908.

I have architecturally engaged friends in Canada and also in the New England, Central, and the Pacific States, who appear to have found almost continuous employment throughout the lean period referred to above, and who are now busy upon all sorts of buildings, and I gather that the outlook for the building trades generally in America is without doubt far more promising than with us. I have found architects in the U.S.A. and Canada kind, considerate, and easy to get on with; the well-trained and pushing "Britisher" is, if anything, above the general average, and when he has learnt a little and forgotten a little is well able to hold his own and to command a relatively much better salary than that which he must be content with at home, even when so fortunate as to be well and fully employed. Many considerations enter into a comparison of final values, but the general rate of pay may be taken to exceed ours by 60 per cent. in Canada and 100 per cent. in the U.S.A., working, say, one hour per day more. Canada is of the two perhaps cheaper for food and lodgings, and is about comparable to London values in this respect; on the other hand, in both countries "Assistant" will pay more for his clothes, personal belongings, accessories, and pleasures.

I believe a great number of our profession have crossed the Atlantic of late years, as, indeed, many thousands of others connected with the building trades, and I have been surprised at the relatively large proportion engaged upon the general building works who were from the "Old Country." This leads one almost to conclude that our avocation is such that the native American deems it too slow and not sufficiently responsive to the "get rich quick" idea.

"Assistant" might reply to the advertisement appearing in your journal this week, or, if a member of the Institute, write to the Hon. Secretary (Canada), Mr. F. S. Baker, of Trader's Bank Building, Toronto, to whose kindness, indeed, I was myself much indebted, during short visits I paid in 1906 and 1907 to "the other side."

"Assistant" should land with not less than $50, and if at U.S.A. port *en route* for Canada retain his poll-tax payment. So late in the year perhaps he had better remain South or go West, rather than try Eastern Canada. E. ALEXR. YOUNG.

BUILDERS' BENEVOLENT INSTITUTION.

THE sixty-third annual general meeting of the Builders' Benevolent Institution was held at 31 and 32, Bedford-street, Strand, W.C., when the President (Mr. Howell J. Williams, J.P., L.C.C.) presided. The following report was submitted—

The Committee of Management begs to submit its sixty-third annual report, and deeply regrets the continued depression in the building trade generally, which is reflected in the diminution of contributions to the funds of the Institution. Every effort has been made to meet the emergency, but an additional sum of 500*l.* worth of Stock has had to be sold in order to meet the calls upon the Institution funds. Some modifications of pensions have been made in consequence of the introduction of State pensions. The Committee earnestly appeals to you for a continuance of your generous support, upon which depends the entire or partial subsistence of the beneficiaries. The funds are administered with every necessary economy, and all needless expense is avoided. During the past twelve months four additional pensions have been given, two being granted to the widows of deceased male pensioners. There are now on the list of pensioners thirty men and twenty-three women. One male and six female pensioners died during last year. The Committee thanks most heartily Mr. Howell J. Williams for his past valuable services as President and for his generous support. Also the Trustees (Mr. F. J. Dove, Sir Arthur C. Lucas, Bart., Mr. T. F. Rider, Mr. J. Howard Colls, Mr. T. Stirling, and Mr. John T. Bolding), the Honorary Auditors (Mr. John T. Bolding and Mr. R. J. Ward, F.C.A.), and the Dinner Stewards. Mr. Wm. Willett has kindly accepted the Presidency for the coming year. . . .

The audited accounts for the last twelve months were received and adopted, and the following elections were made:—

President.—Mr. William Willett.

Treasurer.—Mr. J. Howard Colls.

Hon. Auditors.—Mr. John T. Bolding and Mr. R. J. Ward, F.C.A.

Committee of Management.—Mr. J. T. Bolding, Mr. H. Northcroft, Mr. A. Ritchie, Mr. James F. Parker, and Mr. J. W. Chessum, were re-elected. And Mr. Howell J. Williams, Mr. Edward Allen, Mr. A. H. Adamson, and Mr. Ben Carter, were elected.

Hearty votes of thanks were given to Mr. Howell J. Williams for his services and generosity to the Institution during his year of office as President, and also to the Trustees, the Vice-Presidents, the Hon. Auditors, the Dinner Stewards, and the Committee of Management.

BOOKS RECEIVED.

A THEORY OF DRAWING. By Sir Montagu Pollock, Bart. Pp. 42. (G. Bull & Sons, Ltd. 6d. net.)

THE SOUTH DEVON AND DORSET COAST. By Sidney Heath. Pp. 445. (T. Fisher Unwin. 6s. net.)

THE DOVE MARINE LABORATORY, CULLERCOATS. By W. H. Hudleston, J. J. Lish, and Professor A. Meek. Pp. 123. (Printed by Andrew Reid & Co., Ltd., Newcastle-upon-Tyne.)

THE
BUILDER.

JULY 23, 1910.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and not to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

TERMS OF SUBSCRIPTION.

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MEETINGS.

JULY 22 and 23.

The Royal Sanitary Institute.—Provincial Sessional Meeting, Torquay, when discussion will take place on (1) "The Water Supply of Torquay," to be opened by Mr. S. C. Chapman, M.Inst.C.E., Water Engineer, Torquay. (2) "The Sewage Disposal of Torquay," to be opened by Mr. H. A. Garrett, A.M.Inst.C.E., Borough Engineer, Torquay; and (3) "The Climatic Conditions of Torquay," to be opened by Mr. T. Dunlop, M.B., C.M., D.P.H., Medical Officer of Health, Torquay.

SATURDAY, JULY 23.

Guild of Architects' Assistants.—Visit to a Reinforced Concrete Water Tower at Barnet Union Workhouse, by permission of Messrs. J. & W. Stewart, Contractors, of Belfast, 3 p.m.

FRIDAY, JULY 29.

Junior Institution of Engineers.—Visit the New Pumping Station at Grosvenor-road, Chelsea, of the London Hydraulic Power Company. 6.30 p.m.

FIFTY YEARS AGO.

From the *Builder* of July 21, 1860.

New Act on Public Improvements.

THE new Act which has just received the Royal assent and is now in force provides for local improvements beneficial to the health and comfort of the people. The ratepayers of any parish maintaining its own poor, the population of which, according to the last account, exceeds 500 persons, may purchase or lease lands and accept gifts and grants of land for the purpose of forming any public walk, exercise, or playground, and levy rates for maintaining the same, and for the removal of any nuisances or obstructions to the free use and enjoyment thereof, and for improving any open walk or footpath, or placing convenient seats or shelters from rain, and for other purposes of a similar nature. The Act may be adopted in boroughs. After the adoption of the Act a meeting of the ratepayers is to take place, to make a separate rate, and such rate is to be agreed to by a majority of at least two-thirds in value of the ratepayers assembled. Previous to any such rate being imposed a sum in amount not less than at least one-half of the estimated cost of such proposed improvement shall have been raised, given, or collected by private subscription or donation. The rate is not to exceed 6d. in the pound.

ILLUSTRATIONS.

Sandroyd School, Cobham.

WE are pleased to be able to illustrate this building by Messrs. Treadwell & Martin. The domestic treatment adopted appears well suited to a school in the country.

House, 46, Harley-street, W.

THIS house, for Mr. W. Bruce Clarke, F.R.C.S., has been recently erected upon the east side of Harley-street. The ground floor has been arranged so as to obtain two consulting-rooms in addition to the waiting-room. A service lift is carried from basement to the fourth floor; a telephone-room has also been arranged in the hall.

The basement floor has been planned with special regard to light, glass partitions being placed between kitchen, pantry, and service passage.

The Portland stone front was carried out by Messrs. Webber & Corben, and the constructional steelwork by Messrs. Homan & Rogers.

The roof is covered with Westmorland slates; the doors to the ground and first floors are in mahogany, and the floors and staircase in teak.

The carving to the front porch has been carried out by Mr. Gilbert Seale from the architects' details. The contractor for the work was Mr. H. H. Hollingsworth, of Battens-yard, High-street, Peckham.

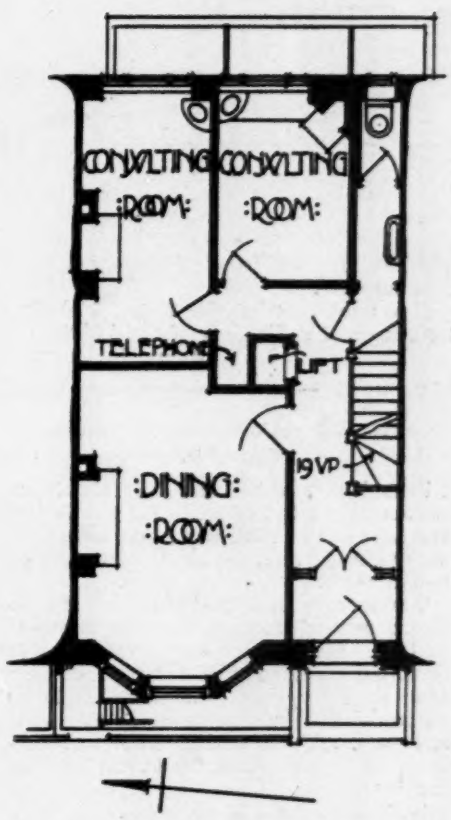
The building has been carried out from the detail drawings and under the superintendence of the architects, Messrs. Banister Fletcher & Sons, 29, New Bridge-street, Ludgate-circus, E.C.

Residential Hotel, No. 19, Berkeley-street, W.

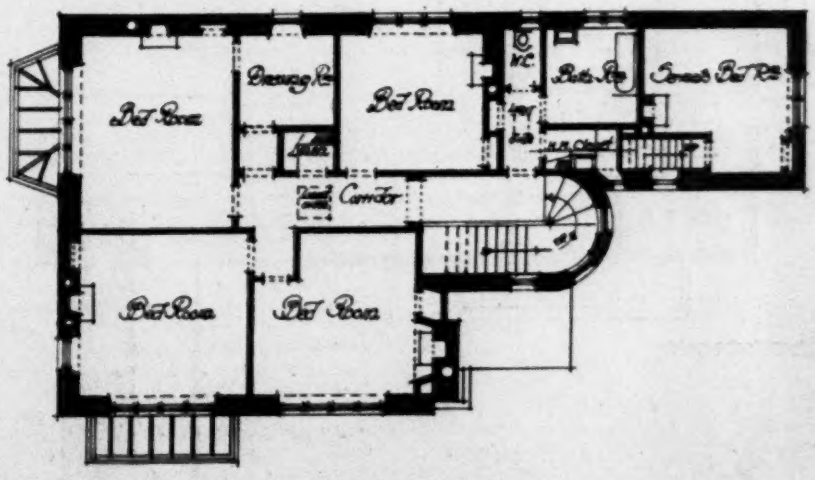
THE accompanying illustration gives a rendered elevation of this building, which is intended to be used as a first-class residential hotel. The position of the site is unique, being situate midway between the Ritz Hotel in Piccadilly and Claridge's in the heart of Mayfair. The outlook from the front rooms will command an extensive view of the gardens to Lansdown House and Devonshire House. It has been the object of the designers to produce a suitable and quiet elevation, the treatment being Neo. Grec. in character, and the decoration influenced by the teachings of Cockerell. The materials used are Portland stone from the quarries of Messrs. John Barnes & Co., Portland, wrought-iron balconies, and Westmorland slabs. The contract price of the work is 18,000*l.*, the contractor being Mr. Charles Gray, Chiswick. The work is being carried out from the designs and under the supervision of Messrs. Richardson & Gill, A.R.I.B.A., architects, Great Russell-street, W.C.

House in Peebles-shire.

THIS house is built of local whinstone rubble, rough-cast on outer surface, the hewn work being from Prudham Quarry.

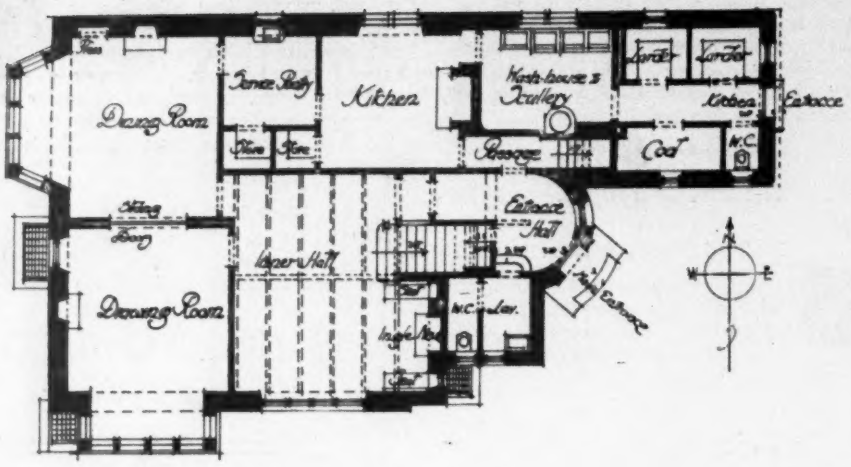


The slates are large-sized rustic slates of different colours. The inner hall was



FIRST FLOOR PLAN

House in Peebles-shire.



House in Peebles-shire.

panelled in oak, also dining-room and drawing-room.

The total cost of the house, including terracing and walling, was about 4,000*l.*

JAMES B. DUNN.

Alterations and Additions, New Crofts, Hillingdon.

THIS house, which was built about one hundred years ago of white Langley bricks, and added to in 1860, was found to be very inconveniently arranged according to modern requirements.

The scheme of alterations proposed included new office-wing, the half basement to be used as cellars only; extension of north-west and south-east fronts, entirely new roof, cupola, etc., new fireplaces, windows, hot-water system, electric light and bells, and the outside walls to be re-faced with stone quoins, bands, and cornices, and rough cast. Unfortunately the scheme was much modified in execution.

The general contractor was Mr. J. A. Hunt, of Hoddesdon, and the sub-contractors were Messrs. Jackson, plaster enrichments; Messrs. Bolding, sanitary fittings; Anglo-Austrian Parquet Floor Company, oak parquet floors.

Mr. G. Berkeley Wills, A.R.I.B.A., was the architect.

THE ARCHITECTS' TECHNICAL BUREAU:

Exhibition of Building Materials and Fittings.

A PERMANENT Exhibition of Building Materials and Fittings was opened at Bloomsbury Hall, 24, Hart-street, Holborn, W.C., on Wednesday. A luncheon was first held at the Holborn Restaurant, there being present Sir Aston Webb, C.B., R.A., Professors R. Blomfield and F. M. Simpson, and Messrs. Louis Ambler, William Dunn, Max Clarke, A. W. S. Cross, Guy Dawber, W. A. Forsyth, H. V. Lanchester, E. J. May, W. A. Pite, Henry Tanner, and others. After luncheon the party proceeded to Bloomsbury Hall, where the Exhibition is housed.

The manager, Mr. W. Barker, having read letters from Messrs. Leonard Stokes, John Belcher, Keith D. Young, Halsey Ricardo, R. Plumbe, and J. A. Gotch, expressing regret at the inability of the writers to be present,

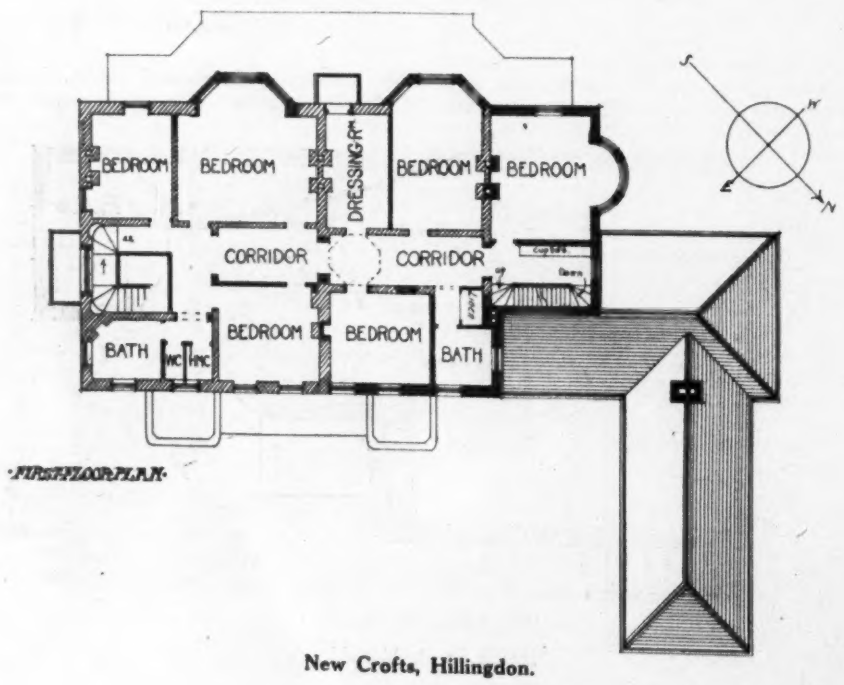
Sir Aston Webb formally declared the Exhibition open. He said that from the cursory glance he had had of the Exhibition, he thought it ought to prove a very valuable one to architects generally. Architects who, in one way and another, were kept very busy, in having letters to write, journeys to make—and occasionally a little drawing to do—had not much time to look at catalogues and get to know the various materials available, and to have them brought together must be a great saving of time to many of them. Architects, therefore, must be grateful for the Exhibition, and he hoped it would benefit exhibitors, too, as it would bring their materials before architects under favourable conditions. They were greatly indebted to the architects who had taken the trouble to organise the Exhibition; they were busy men, and they had taken great pains to bring these new materials, etc., before their brother architects. The Exhibition came very usefully at the present time, when all architects must feel that to some extent we were at the parting of the ways of both construction and design. All who kept their eyes open must be aware of the great change which was taking place—for good or ill he would not venture to say; but when we saw a great building like the General Post Office built almost entirely of iron and concrete, we must feel that there were great changes going on. Our old friend the carpenter had almost disappeared; he did not see him represented in the Exhibition at all, though the joiner was there. Everyone seemed to be superseding the carpenter. In France they had done that many years ago, and the French, great artists as they were, had never been afraid to use new materials for their designs. Again, the plumber and the slater were being affected by the use of new materials, and all this indicated that a change was taking place. It did not follow that this would be bad for trade, for men who had followed one trade would follow another. And possibly it might be the saving of the art of architecture—*i.e.*, that these new forces would give new life to the work that was to come. Another change was that architects were looking more to texture than they used to do, and less to the ornamental surface of mouldings and decorations of that sort. That affected the materials brought forward, and manufacturers tried to give more colour and more texture and less precision of colour and make than they did before. Ladies used to influence them in thinking that every brick should be the same colour, but now they were not so anxious for such workmanship. He was shown the other day a gold box, and the jeweller drew his attention to the wonderful workmanship of it. He (Sir Aston) replied that it seemed to be well made and badly designed. The first thing was design, and to see that the workman knew something of the design. They did not want so much the precision of workmanship as the feeling of human labour about a building. In seeing all these interesting materials one realised what a task the architect had to interest himself in them and to use them to his purpose. Architects had to take them in their minds' eye and realise that they could use them satisfactorily, and provide what the client expected—useful and convenient buildings, which were at the same time beautiful. Anyone who neglected the new materials being brought out could not feel that he had done what was required of him.

Mr. H. D. Searles-Wood, in proposing a vote of thanks to Sir Aston for presiding, said they hoped the collection of materials would be kept well up to date. The exhibits had passed the inspection of a committee of architects. In order to afford facilities to those who could not visit the Exhibition at any moment, the Bureau had issued a catalogue of the things shown at the Exhibition.

Professor Blomfield seconded the vote of thanks. In the handling of architecture, and in the various questions which affected them, Sir Aston had always shown himself a fine sportsman. He differed from him in one remark he made as to their French colleagues. No one admired them more than he (the speaker), but there was one point in which we Englishmen held an advantage—*i.e.*, we always studied materials. For the last 300 years the French had ignored materials. They had done splendid work, but we used our materials more freely.

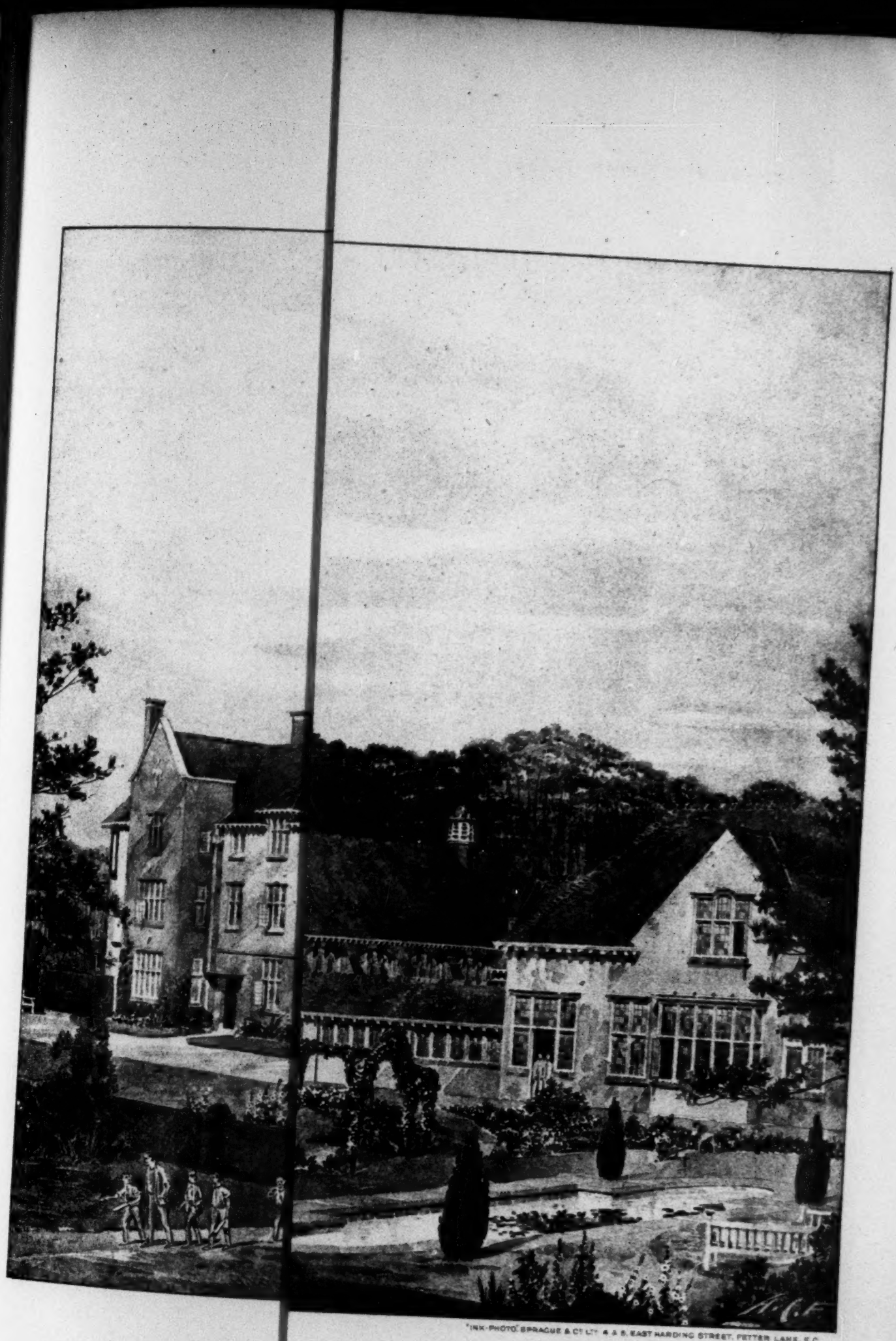
The vote of thanks having been carried,

Sir Aston Webb replied, and the proceedings terminated.



New Crofts, Hillingdon.

ART GALLERY, SWANSEA.—The Glynn Vivian Art Gallery, which is being erected through the liberality of the late Mr. R. Glynn Vivian, brother of the late Lord Swansea, is situated opposite the Swansea Public Library, in Alexandra-road, and its cost is about 10,000*l.* The architect is Mr. Glendinning Moxham, Swansea, and the contractors Messrs. Lloyd Brothers, Swansea.



"INK-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

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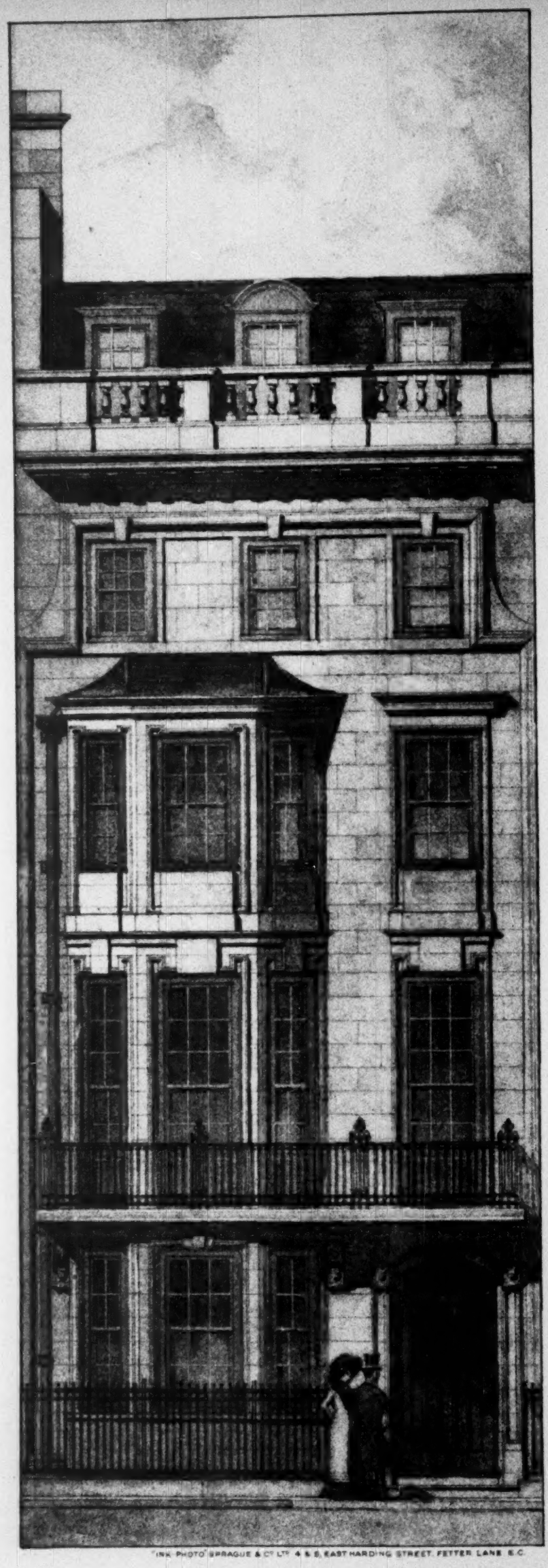
SANDROYD

"INK-PHOTO" SPRAGUE & Co LTD 4 & 5, EASTHARDING STREET, FETTER LANE, E.C.

SANDROYD SCHOOL, COBHAM.—MESSRS. TREADWELL & MARTIN, ARCHITECTS.



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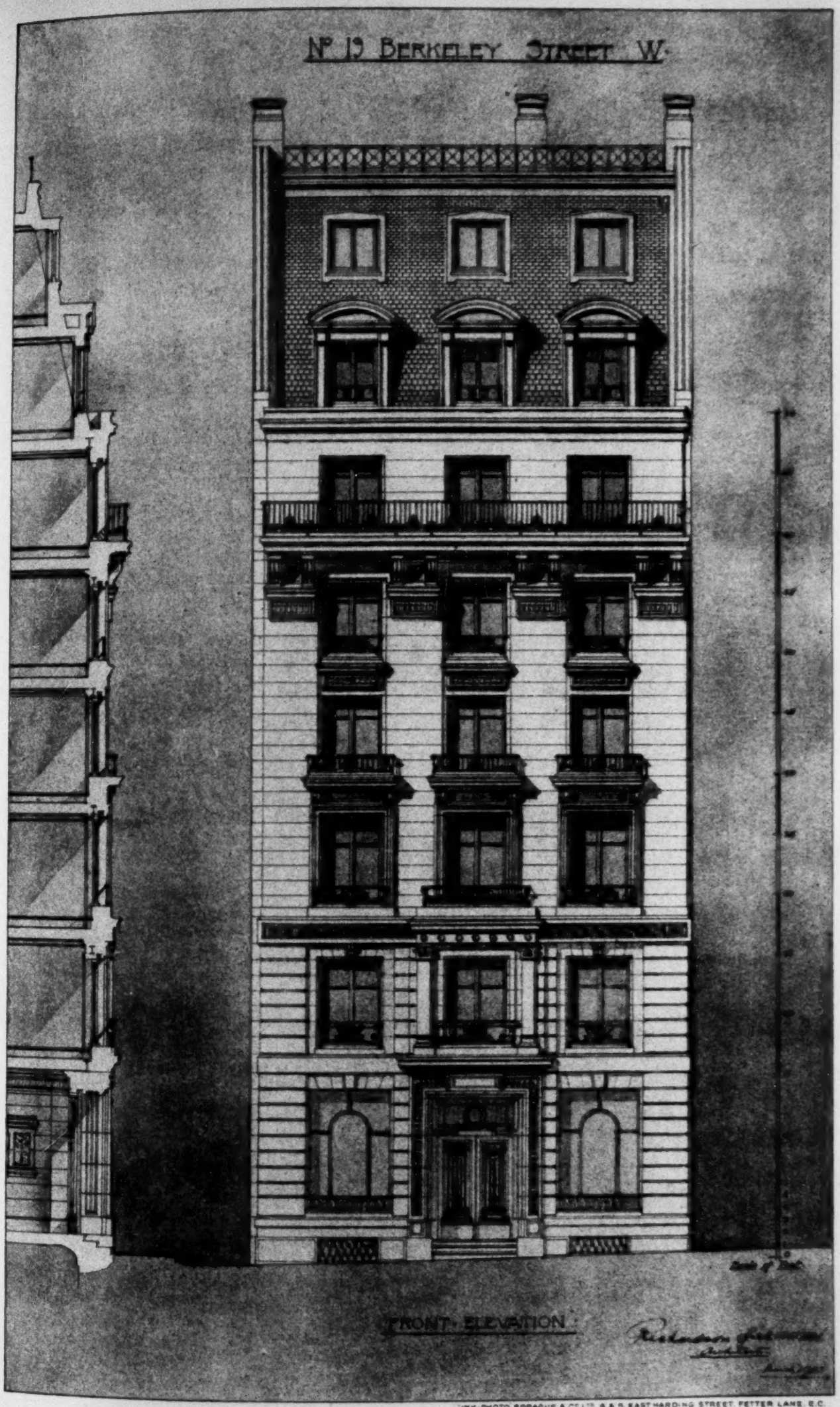
No. 46 HARLEY STREET, W.—Messrs. Banister Fletcher & Sons, Architects.



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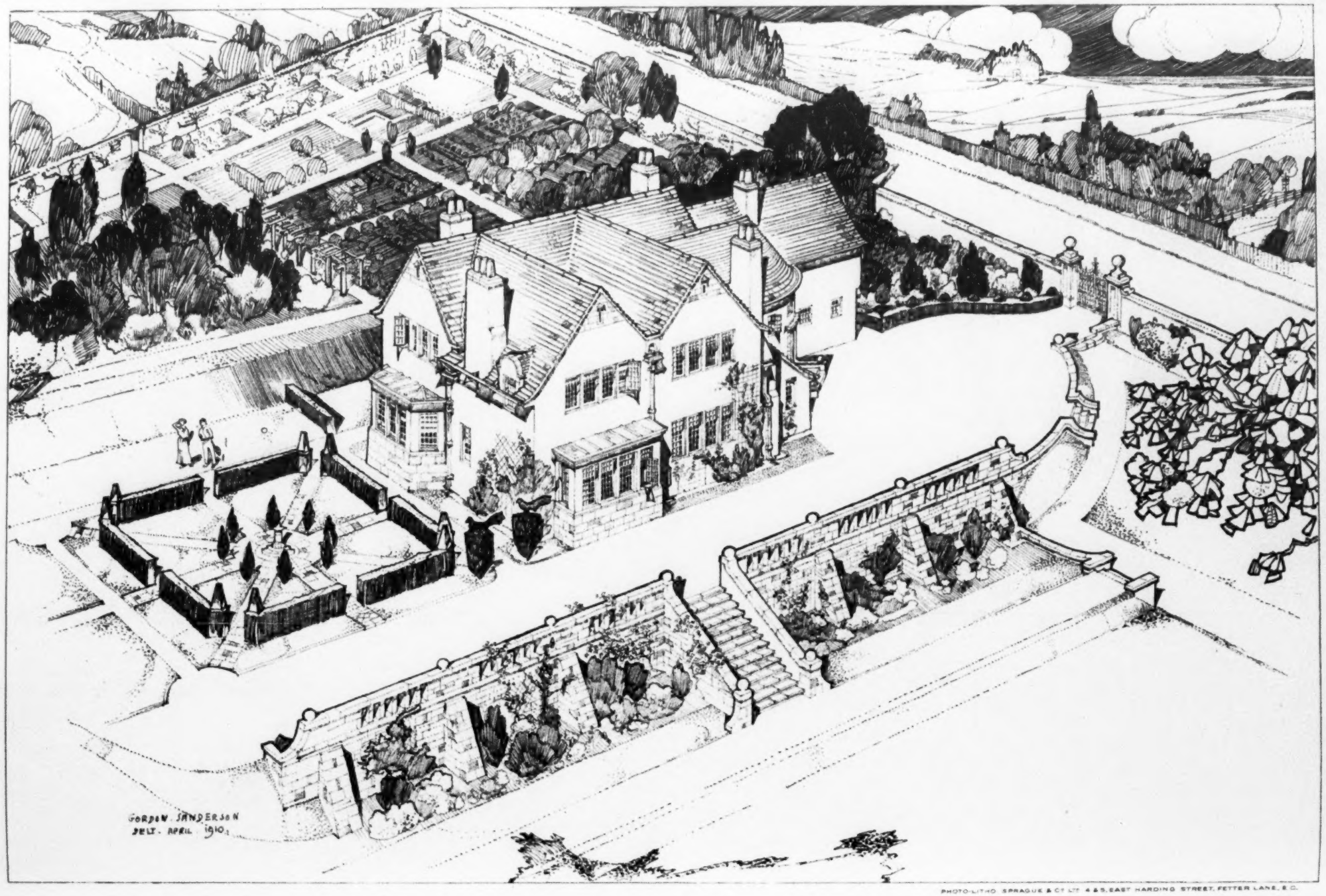
No. 19 BERKELEY STREET, W.—Messrs. Richardson & Gill, Architects.



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HOUSE, PEEBLESHIRE, N.B.—Mr. James B. Dunn, F.R.I.B.A., Architect.

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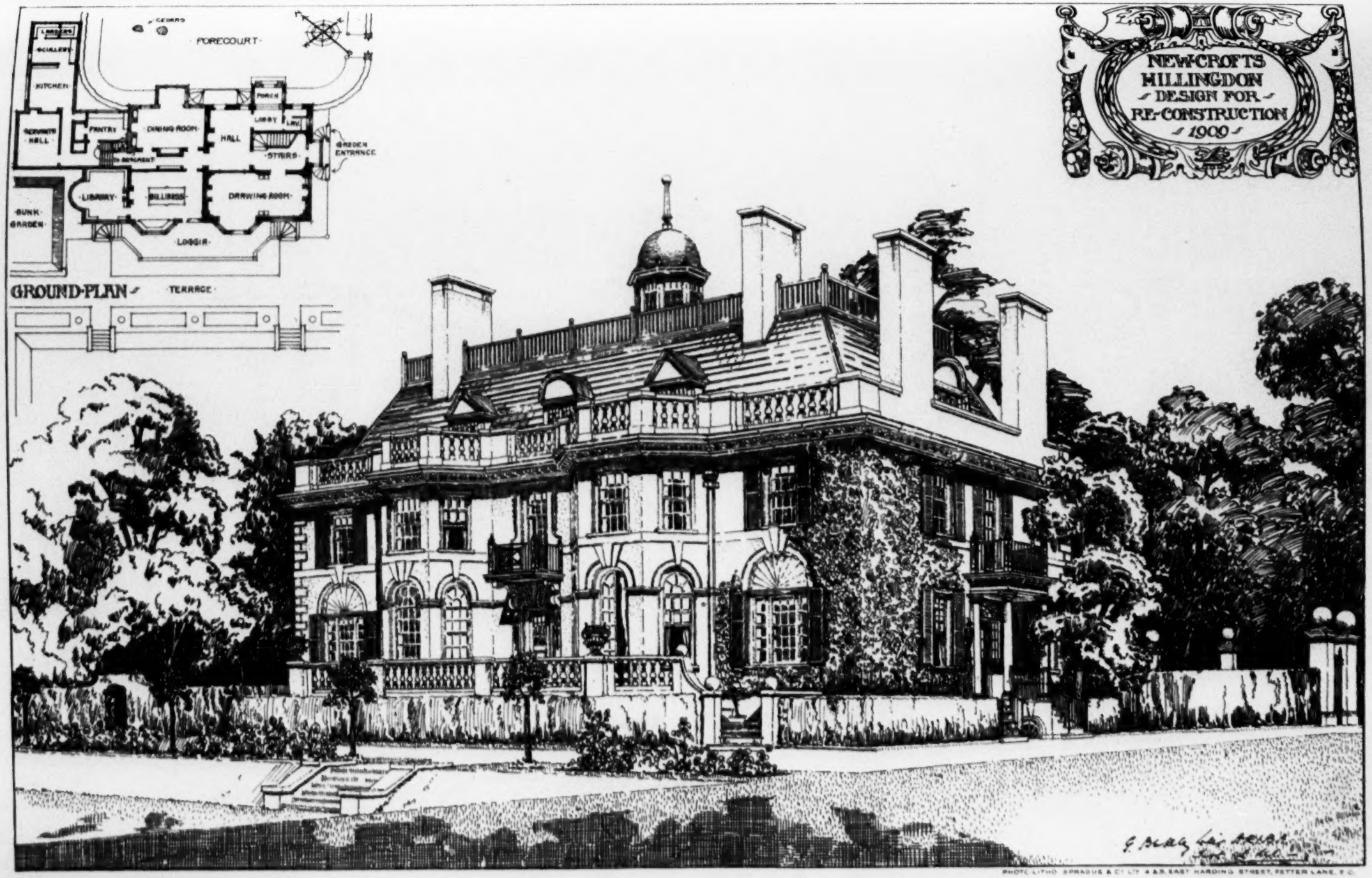

HOUSE AT HILLINGDON.—Mr. G. Berkeley Wills, A.R.I.B.A., Architect.

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MONTHLY REVIEW *of* ENGINEERING.

WOOD *VERSUS* STEEL.

In these days of steel and concrete, it cannot fail to be of interest to many of those engaged in structural engineering work to learn that there is at least one part of the great continent of North America, viz., New Brunswick, where humble wood is still in a large measure holding its own as a constructive material.

The face of New Brunswick is broken up in every direction by hills and valleys, brooks and streams, and lakes and rivers. Therefore bridges innumerable have to be provided on all the highways of the land and thus the Department of Public Works is kept busy with the construction and maintenance of bridges of all sizes and descriptions. These vary in size from small bridges erected over creeks and streams to huge structures with spans of 300 or 400 ft.

In consequence of this demand the question of the most suitable design, and the durability of the materials in general for bridge work, has been specially studied by the engineers of the Public Works Department.

Formerly, as in other parts of America, all the bridges were of wood construction, and many fine examples still remain to attest the skill and ingenuity of the bridge carpenters of a generation or so ago. Such an one as is shown in Fig. 1, depicting wooden trusses of 240 ft. span resting on cribwork piers, deserves the admiration of all true lovers of craftsmanship. For it must be remembered that the problem of designing and constructing a wooden bridge with spans of as great a length was a vastly different task from that which confronts the modern designer of steel structures of similar size.

While steel holds the field for large bridges in New Brunswick it is otherwise with those of small span. For some years after the introduction of structural steel the Government engineers built all new bridges of that material, but for several years past that policy has been abandoned, and now for all spans up to 180 ft. wood has once more come into use.

Various reasons have led to this re-adoption of timber construction, one of the most important being the cost of maintenance of steel bridges. For instance, a steel bridge requires to be thoroughly painted every third year with a heavy coat, either of the well-known carbonised coating paint, or with a granite compound. The cost of painting a truss of 180-ft. span is from 60*l.* to 80*l.*, and, however carefully the work may be done, there are likely to be inclosed portions which cannot be protected against oxidisation.

With the modern wooden bridge, however, roofed in from end to end, as shown in Fig. 2, not one penny need ever be spent on paint, provided a coat of hot tar be applied to the joints when first fitted. There is little doubt that the life of a properly constructed wooden bridge will greatly exceed that of a steel one; a recent estimate by a leading designer of these structures placing the duration of the former as at least 100 years. Of course during that period the roof shingles would require renewing several times; the life of cedar shingles being only about twenty-five years. Modern steel shingles will, however, undoubtedly last much longer than those of cedar, and may not require renewing more than once in a century.

An important question is that of the up-keep of the bridge floor, usually composed of hemlock planking overlaid with a top floor of hardwood, generally birch or maple. In the case of a steel bridge, open to all weathers, it is found almost invariably that the hardwood upper flooring decays long before it wears out, and thus requires frequent renewal. But with the covered wooden bridge the reverse is the case, and the hardwood surface flooring will wear down to the thinnest possible dimension before showing any signs of decay. Thus, on the question of the cost of maintenance, the evidence is all in favour of the wooden against the steel bridge.

Another consideration of great weight

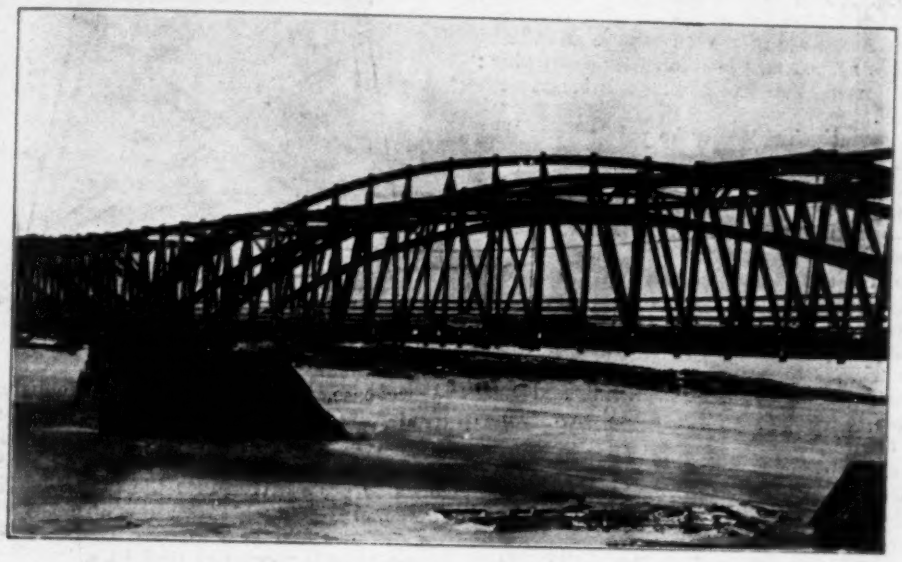


Fig. 1. Wooden Truss Bridge.

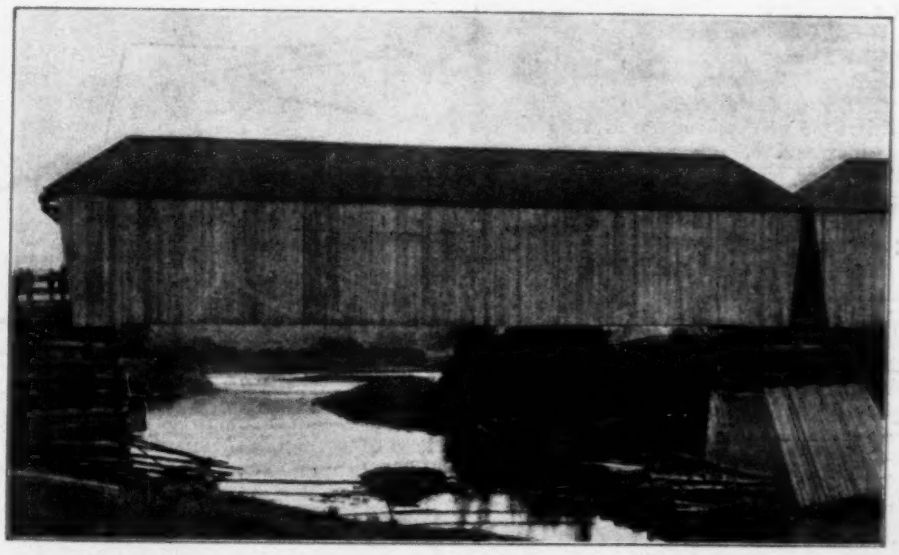


Fig. 2. A Covered Bridge.

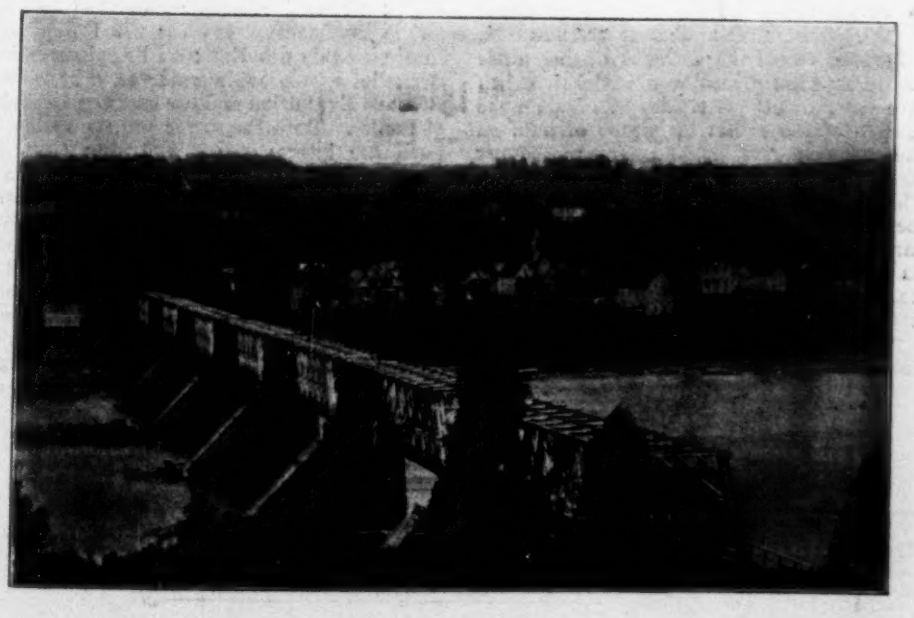


Fig. 3. Bridge before being covered.

is that, in many cases, the cost of transporting steel to the site of the proposed structure would be enormous. Many bridges are, necessarily, in remote parts of the country, away from railroads and navigable waterways, while the surrounding forests afford abundant supplies of timber ready to hand. If no saw mill exists within reach, a portable mill is easily obtainable, and, with the addition of a blacksmith's shop, will provide all the equipment necessary for bridge building.

Fig. 3 is a typical example of a modern wooden bridge before the covering is added. The trusses are of the Howe type and are of native spruce and southern (longleaf) pine; the flooring being of hemlock, overlaid with birch.

In conclusion, it may be pointed out that not only is it of general interest to record the fact that a phase of engineering construction still exists in which wood is holding its own, but it is also important to remind students of engineering that the study of wooden structures should not be wholly neglected. For not only is the policy of the Government engineers of New Brunswick likely to be repeated in districts of North America, but in other parts of the world where similar conditions prevail, and may have to be met in the same way. Thus, in countries still remaining to be opened up, the wooden bridge may play as important a part in the future as it has done in the past.

NOVEL TYPE OF TIMBER BRIDGE.

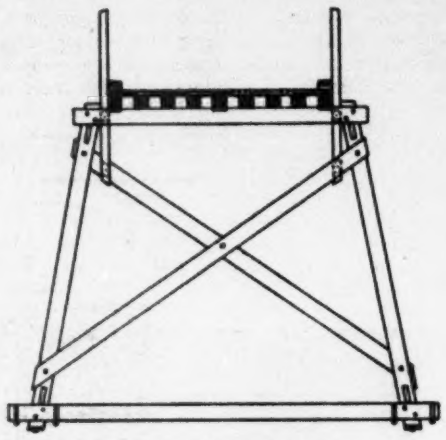
AN ingenious application of timber and steel cable is represented by the bridge built by Lieutenant Houwing, of the Netherlands Royal Engineers, across the Tii Miniak, in the Dutch East Indies.

This type of construction is very simple and inexpensive, and, being particularly suitable for crossing streams with high banks, it should be of special interest to those who have occasion to provide economical means of communication over rivers in British colonies and newly-developed countries.

As shown in Figs. 1 and 2, the Tii Miniak bridge has the clear span of 112 ft. 10 in., and the width of 8 ft. 11 in. between the balustrades. It is formed of timber frames rigidly braced and placed at equal distances apart upon two groups of three 1-in. diameter steel cables. The frames are of different heights and braced longitudinally to obviate distortion of the structure, which carries a timber platform as represented in Fig. 2. At each end the cables are suspended from hooks anchored into a timber beam bedded on the masonry abutment (see Fig. 3) and tied back by means of steel cables attached to an anchorage at the distance of about 20 ft. away from the abutment and 6 ft. 6 in. below the beam, the anchorage being made secure by piles driven to a sufficient depth into the ground. It is easy to regulate the tension of the cables by means of nuts on the screwed end of the hooks, thereby obviating excessive flexure of the bridge when under load. Small angular movements are permitted by making the holes through the anchor beam slightly conical. In order to compensate for flexure under normal conditions the truss was built with a slight camber.

The timber frames are attached to the cables by iron wire, and to prevent any sliding on the part of the three end frames, which are very oblique in relation to the cables, these members are tied back directly to the anchor beams by auxiliary steel cables.

The longitudinal beams of the platform extend over three panels of the truss in



Timber Bridge. Fig 2.

every case, the timber posts of the balustrades are attached to the frames below, as shown in Fig. 2, and through the whole series pass two steel cables attached at their ends to posts driven into the ground. The diagonal bracing between the posts of the balustrades and between the frames of the main truss is formed of steel bars.

All the timber was protected by tar, and those parts buried or driven into the ground

Timber Bridge. Fig. 3.

was further protected by a binding of hemp and steel wire as a precaution against attack by termites.

The bridge was designed for the uniform load of 82 lb. per square foot, and the moving load of artillery waggons with the weight of 1,765 lb. per axle, the dead weight of the structure being only 14 tons.

WATER TOWER AT THE BRUSSELS EXHIBITION.

THE elevated reservoir described in this article was constructed for the Compagnie Internationale des Eaux de l'Agglomeration Bruxelloise to provide water services to the Brussels Exhibition and the suburban district of Ixelles. Both the tower and the reservoir itself are interesting as embodying an ingenious method of applying reinforced concrete blocks on the system devised by M. Dumas, a Belgian architect and civil engineer, and controlled by Messrs. Monnoyer et Fils, of Brussels.

Two important advantages secured thereby are the elimination of the costly falseworks necessary for building reinforced concrete or masonry towers in the ordinary manner, and the facility afforded for building tapered shafts in reinforced concrete.

Above the base, which is of masonry carried by a reinforced concrete foundation, the structure of the tower and reservoir is built up of reinforced concrete blocks made on the site in cast-iron moulds and connected by cement mortar and reinforcement, the latter applied in the form of longitudinal bars, stirrups, and circumferential ties.

Each horizontal course is composed of blocks as represented in Fig. 1, the body of the block being cast with a longitudinal groove to receive part of the circumferential tie, and one end of the block terminated by a claw-shaped socket, in which the plain end of the next block is inserted. The remaining space inside the socket is filled with cement mortar and one of the longitudinal bars, the U-shaped stirrup serving the purpose of connecting the longitudinal and circumferential reinforcement.

In the case of the Brussels tower each course is composed of twenty-two blocks, the joints being alternately right and left in successive courses. To impart the desired taper it is simply necessary to insert the plain end of each block a little farther into the corresponding socket as work progresses. If the tower to be built is very high, or has an exceptional batter, the available depth of the sockets may be used up before the tapered construction has reached its full height, and in that event it will be necessary to mould the blocks for the upper courses with a slightly shorter body.

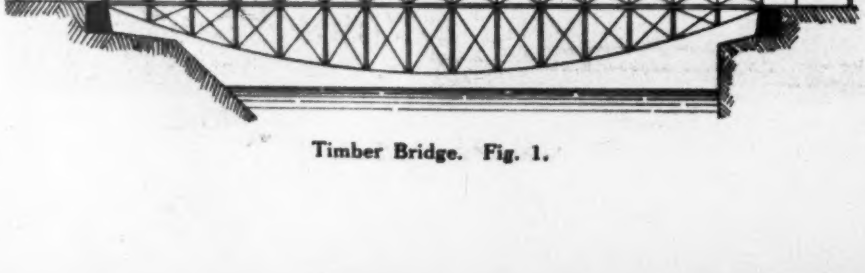
The rounded heads of the superimposed blocks form pilasters which are not only useful from the structural standpoint, but also improve the appearance of the shaft by giving it the form of a fluted column.

Fig. 2. is a vertical section of the tower, making clear the general character of the design. The reinforced concrete floors of the two suites of dwelling-rooms act as efficient interior bracing, and a similar purpose is served by the three upper platforms, and the floor of the apartment immediately below the reservoir. Fig. 3 is a section through A B in Fig. 2, showing the arrangement of the platform and stairway, both of reinforced concrete. At the centre of the platform is an opening for the reinforced concrete shaft provided for the accommodation of water pipes and the smoke flue from the dwelling-rooms.

Level with the floor of the upper chamber is a reinforced concrete ring beam carrying a series of columns and cantilever brackets by which the reservoir is supported. The ceiling of the chamber is extended in cantilever over the radial brackets, and forms the floor of the reservoir. From the floor are built up two concentric walls, 27 ft. high, one constituting the well for a spiral stairway giving access to the roof, while the other is the wall of the reservoir proper.

The inner partition is of ordinary reinforced concrete, 6 in. thick, moulded in shuttering in the usual manner; the outer partition, 7 in. thick, is built up of curved blocks of similar type to those employed in constructing the shaft of the tower, but without the projecting head. Instead of this, each block is moulded with a vertical groove at the ends, and so accommodation is afforded for the vertical reinforcement. Along the top of each block a wide groove is moulded to receive the circumferential reinforcement, which consists of two round bars connected by strips of hoop steel forming a kind of latticed bracing. In order to make the reservoir perfectly watertight the circular wall is rendered by a coating of cement laid upon sheets of expanded metal.

Outside the reservoir proper is a third concentric wall leaving a narrow circular passage lighted by exterior windows and enabling the staff to inspect the entire surface of the reservoir. The annular space is also of value in protecting the water from extremes of heat and cold. The blocks used for building the outer wall are identical in form with those of which the tower is constructed.



Timber Bridge. Fig. 1.

Fig. 4 is a part horizontal section illustrating details of the two outer walls of the reservoir.

The main roof of the tower is finished by a cornice surmounted by a balustrade, and upon the roof is a circular pavilion lighting the spiral staircase and forming a covered landing wherein an opening is provided giving access to the interior of the reservoir and to the surrounding inspection gallery, by means of iron ladders. At the middle of the pavilion roof, which is 145 ft. above ground level, is the chimney proceeding from the lower part of the building.

Thanks to the reduced weight of materials to be handled and the small amount of labour as compared with that for brickwork, the Ixelles water tower was completely built in little more than six months.

By means of the system described all the advantages of reinforced concrete were obtained without the aid of the usual moulds and shuttering, the consequent saving of cost being a considerable item.

HEATING AND VENTILATION OF WORKSHOPS FOR THE FRENCH STATE RAILWAYS.

THE workshops of the French State Railways at Saintes, in Charente-Inférieure, comprise wood-working and boilermakers' shops, where some interesting examples have been installed of apparatus for heating, ventilation, and dust removal. Apparatus is provided in the forge for mechanical ventilation and heating combined and two special arrangements for dealing with fumes, one for the forge fires and the other for locomotive furnaces under steaming tests. In the wood-working department, shavings, chips, and dust from planing-machines, circular and band saws are drawn away away from the point of production by suction pipes over each machine, and a pneumatic floor-sweeping appliance has been installed beneath the boring and mortising machines. All waste material is removed through a large duct with branches to the various machines, the main conduit terminating with an exhaust fan with 28-in. diameter wheel operated by electric motor. Shavings, chips, and dust are discharged thence into a centrifugal separator.

The general heating system provides air warmed by a battery of steam-pipes fed from locomotive type boilers previously installed, and whose output was increased to meet the additional requirements of the heating apparatus by the application of mechanical draught. In this way the capacity of the boilers has been increased by nearly 40 per cent.

Warm air is distributed through the workshops in galvanised pipes connected with an exhaust fan, other pipes and fans being provided for dealing with smoke from the forge.

Selection of Timber. NOT very long ago, timber was selected entirely according to its external appearance. The diameter and length of the piece, the straightness of grain, sometimes the weight, sufficed to determine both its commercial value and its destination. The diversified industries of the present day require a corresponding diversity in the wood employed. For one purpose, the important quality is hardness; for another, elasticity; for a third, ease of working, or resistance to attack by external agencies. The hand magnifying glass, which was first employed, has ceased to suffice for the exact determination of the structure of wood. The compound microscope is now used for the minute and careful examination of longitudinal and transverse sections of a specimen of timber, the commercial value and the proper industrial employment of which it is desired to determine. Fine-grain and thick-walled cells assure the solidity and resistance which are required in carpentry, and these qualities are incompatible with an abundance of parenchymatous tissue, filled with starch.

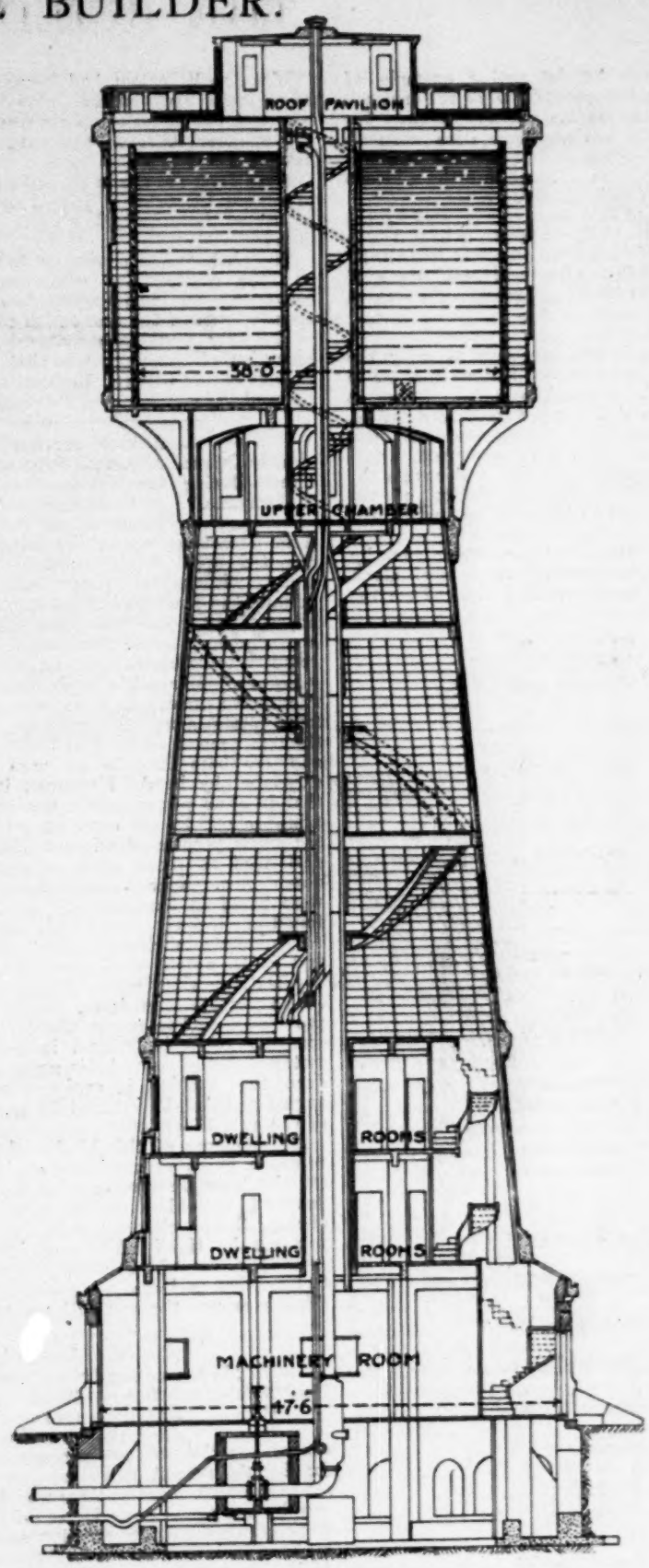


FIG. 2.

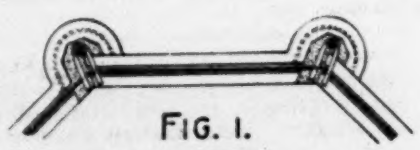


FIG. 1.

FIG. 4.

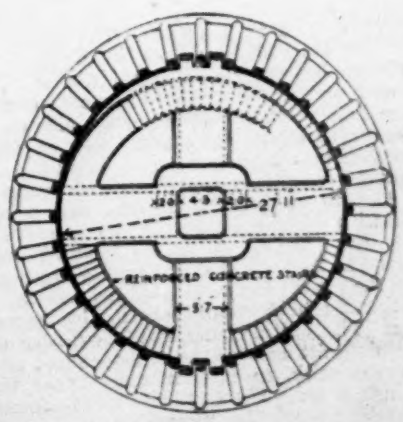


FIG. 3.

Water Tower, Brussels.

Foundation Wells for a Railway-Station.

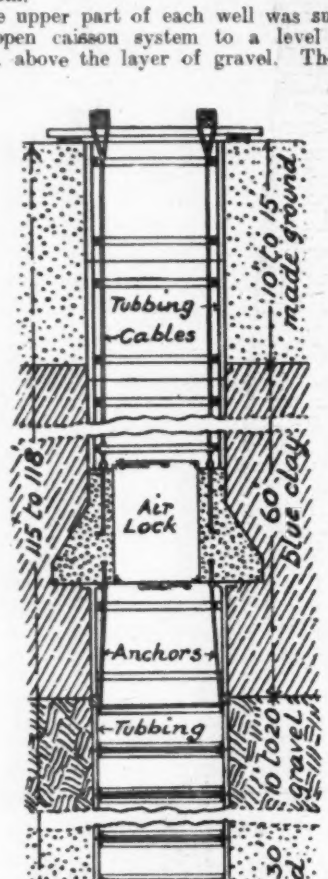
AN interesting example of structural work is furnished by the method adopted for sinking foundation wells on the site of the new terminus in Chicago for the Chicago and North-Western Railway.

The soil consists of made ground to the depth of from 10 ft. to 15 ft., a bed of blue clay 60 ft. thick, a layer of gravel from 10 ft. to 20 ft. thick, and sand to the depth of from 20 ft. to 30 ft., overlying solid rock at the average depth of 116 ft. below normal surface level.

It was considered necessary to carry the foundations down to rock bottom in order to ensure the stability of the buildings, and, as the two lower strata are of aquiferous nature, the employment of compressed air was essential before these were penetrated.

The accompanying section will enable the reader to follow the description of the methods adopted for dealing with the problem.

The upper part of each well was sunk by the open caisson system to a level about 10 ft. above the layer of gravel. Then the



Foundation Well.

base of the well was enlarged as shown, and the conical end was filled with concrete, enclosing a cylindrical air-lock about 6 ft. high by 4 ft. 6 in. diameter. The concrete block was suspended by steel cables attached to timber bearers placed across the top of the well, and was afterwards anchored down to the tubbing at the bottom of the blue clay in order to guard against the risk of displacement by the pressure of air beneath.

Sinking operations were continued beneath the lock in compressed air, the well being lined with tubbing formed of vertical staves, 3 ft. long by 2½ in. thick, tongued and grooved so as to prevent the ingress of water from the gravel and sand, and the successive lengths of tubbing were connected by tee-bar rings. The cutting ring was a cylinder of steel plate fitting over the timber lining, and provided with an interior flange near the cutting edge. The cylinder was forced through the soil by means of four screw-jacks acting between the joint ring of the last section of tubbing and the flange bolted to the cylinder.

When rock bottom had been reached the screw-jacks and cutting ring flange was removed, but it was usually necessary to leave the cylinder itself in the well. The next operation was to fill up the well with concrete lowered from the top in buckets; as the work proceeded the tubbing joint rings were disconnected, but the timber lining was left in place.

The air-lock was drawn up to the surface and the cavity filled with concrete, thus converting the surrounding block into an essential part of the foundation pier.

The only trouble encountered during the execution of the work was that due to the leakage of air between the cutting ring and the well lining.

Motor-Driven Earth-Boring Machine.

A VERY serviceable machine of unique type employed on the Western Pacific Railroad in California consists of an augur driven by chair gear from a gasoline motor, the apparatus being mounted upon a four-wheeled horse-drawn trolly, with a swivelling platform, which permits the exact position of the augur to be adjusted after the trolly has been brought approximately to the place where the hole is required to be bored.

Between Marysville and Oroville some twenty-five miles of holes were bored for fence posts along the railway mentioned, through ground so hard and dry that picks and crowbars had to be used for holes excavated by hand. Moreover, it is stated that in some places, where the ground contained about 25 per cent. of cobble stones, the augur penetrated without difficulty, and performed as much work as more than a dozen men. Near Reedley numerous holes were bored in hardpan, the machine being found particularly economical, and at Mendota ninety 8-in. diameter holes, 30 in. deep and 33 ft. apart, were bored through hard, dry earth in sixty consecutive minutes.

The machine as made for holes 4 ft. deep is provided with two augurs of 8 in. and 12 in. diameter respectively, and is driven by a motor of 7½-h.p. For holes up to 6 ft. 6 in. deep the machine is equipped with three augurs of 8 in., 12 in., and 18 in. diameter, driven by a 12-h.p. motor.

An appliance of this kind ought to be of value to builders, municipal engineers, and all who have frequent occasion for installing posts of any kind in the ground. It is obvious that a clean-cut hole, into which a post can be tightly driven or inserted and grouted in, must be in every way more satisfactory than a large excavation afterwards filled in around the post with rammed earth.

Unusual Mode of Sinking Piles.

FOR the foundations of a masonry bridge over the River Neisse at Muskau, Germany, steel piles were considered undesirable on account of the corrosive action of the stratum of lignite forming the subsoil, and consequently timber piles were used. But as these would not drive readily, and as the operation of driving tended to break up the lignite bed, it was decided to set the piles in drilled holes. Holes of 10 in. to 11 in. diameter were drilled about 17 ft. deep, and when the piles had been inserted they were driven for a foot or two, this being about the limit of driving.

Rapid Concrete Building Work.

SOME remarkably rapid building construction was effected in the new reinforced concrete skeleton building for the Pierce-Arrow Motor-Car Company at Buffalo, N.Y. This building is four stories high, 308 ft. by 62 ft. in plan, with a 105-ft. by 51-ft. wing, making a total floor space of about 107,500 sq. ft. The contract was placed on September 24, 1909, and, although building operations were not started until October 15, the building was ready for occupation on January 15, 1910, after seventy-two working days, with no Sunday and very little night work.

The rapidity of erection was aided by the compact arrangement of the concrete plant. Aggregate was delivered direct from railway trucks into barrows, in which it was wheeled to the mixer. Cement was unloaded from trucks direct to a storage-house, and taken thence to a platform directly opposite the loading platform. Concrete from the mixer was discharged into an elevator dump-bucket, which carried the material to the desired floor, there to be hauled in wagons to the required points. Steel was hoisted into place by a separate derrick. The moulds were of simple design, and constructed so that they could be taken down and re-erected in different parts of the building for repetition work.

Methods of Excavation at Rosyth.

ALTHOUGH the contractors were aware that in the work of excavation at Rosyth they would encounter a good deal of rock within the area enclosed by the earthen embankments, the strata have proved to be harder than anticipated. Therefore they have had to abandon the idea of using the Lubecker excavating machine, which is more effective on softer material. In the place of that excavator they have adopted an American rock channelling machine. The system on which this machine works is to cut two parallel trenches about 20 ft. deep into the rock, each trench being some distance from the other, the intervening material between the trenches being easily removed. As the machine is the first of its kind to be used in the United Kingdom, its operations will be watched with interest by contractors.

Tree-Felling by Machinery.

A MACHINE used for cutting trees in forest land near Tarbert consists of a steam saw, a portable boiler, and a length of flexible steam pipe. The machine weighs about 4 cwt., and fells from ten to twelve trees of 30 in. diameter in an hour. The saw is fixed to the end of the piston-rod, working in a 5-in. diameter steam cylinder connected to one end of the flexible pipe, the other end of the pipe being attached to the boiler, and the teeth are shaped to cut only during the inward stroke. Saws as long as 10 ft. can thus be used without any straining guide. Steam is supplied at high pressure from the boiler through the flexible steam pipe, which is of sufficient length to enable the machine to fell trees over a considerable area without moving the boiler.

Rapid House Demolition.

THE removal of the twelve-year-old, twenty-story Gillender Building at Wall and Nassau streets in New York is certainly a record in house-wrecking. The time allowed was forty-five days at a price of 10,000*l.*, with a penalty of 100*l.* for every day exceeding that period. The most difficult part of the work was the removal of the brick backing of the outside stonework. The steel frame was taken down, piece by piece, by knocking off the heads of the rivets and driving the latter out with a drift pin. The steel work will be available for other construction.

A Large Railway Cutting.

THE Bergen Tunnel under Jersey City Heights, through which for forty years all passenger trains on the Erie Railroad have been run, was abandoned on July 1 for passenger service, and given over wholly to goods traffic. Passenger trains now run in an open-air four-track cutting, upon which the contractors have been at work for the past three years. The cutting, which extends for 4,400 ft. through the Heights, is 58 ft. wide at the bottom, and varies from 45 ft. to 85 ft. in depth. It is intersected by four tunnels, where the material has been left in place to carry the streets above; but none of these is of greater length than an ordinary train.

Reinforced Concrete Fire Test.

IN a recent fire test of the reinforced concrete floor of a tall building, the following excellent results were obtained. The floor panels measured 22 ft. by 20 ft. centre to centre of the columns, and they were required to stand a test load of 200 lb. per square foot, with a deflection not above ¾ in. In the test, the deflection under this load was only ½ in. With a hot fire beneath the floor, there was an increased deflection of 1¼ in. Water from a fire hose was then directed against the bottom of the now heated concrete, when the floor rose ¾ in., leaving 1½ in. deflection.

Rapid Caisson Sinking. A RECORD in pneumatic caisson sinking has recently been made in the foundations for the Municipal Building, New York. A caisson for one of the column piers was sunk through sand to rock at the depth of 112 ft. 1 in. below water level without accident or casualty of any kind. The caisson is of concrete with a reinforced cutting edge, and supports a concrete shaft 10 ft. 9 in. in diameter. The construction of the caisson was commenced April 15, and the bottom was passed May 16. This is stated to be the deepest pneumatic caisson ever sunk.

Preservation of Steel in Concrete. In his Presidential address to the University of Liverpool Engineering Society, Mr. H. J. F. Gourley dealt generally with the use of reinforced concrete in waterworks engineering. Speaking of concrete as a protection against corrosion he referred to a case where some steel chain had been embedded in a concrete sea wall as reinforcement about twenty-five years ago at Bridlington. When exposed quite recently the steel showed no signs whatever of corrosion, although the lower part of the wall had been covered by the sea at every tide. This testimony is worthy of note as further confirmation of the point in question.

Water Supply of Vienna. AFTER being under construction for about ten years, the new waterworks of Vienna are nearly completed, and will be inaugurated at the end of this year. Supplies are derived from mountain springs, and brought to the city by an aqueduct, 113 miles long, built mainly of concrete and measuring 6 ft. 10½ in. high by 6 ft. 3 in. wide. Numerous tunnels have been driven on the line of the conduit, one of them at Göstling being 3½ miles long, while the total length of the tunnels aggregates nearly 53½ miles. As a general rule, valleys have been crossed by siphons with the collective length of 13 miles, but there are also about 100 bridges accounting for some 5 miles of the aqueduct. The new aqueduct will bring into Vienna an auxiliary supply of more than 50 million gallons daily, which will certainly be a most welcome addition to the yield from the existing works, whose output ranges from 35 million gallons down to 26 million gallons a day, according to circumstances.

Rapid Steel Erection in Chicago. IN building the second section of the premises for the People's Gas Light and Coke Company at the corner of Adams-street and Michigan-avenue, Chicago, 3,640 tons of structural steel were erected and riveted in thirty-six working days of eight hours each. The material brought to the site in waggons was hoisted by two derricks with 80-ft. steel booms, enabling them to command the whole site and adjoining parts of the two streets. Four teams of horses were engaged in transporting the steel from the railway goods depot, and eighty men were employed in erecting the steelwork.

The Menufia Head Regulator Collapse. CONTROLLING the supply of practically all water distributed for irrigation between the Rosetta and Damietta branches of the Nile, the head regulator of the Menufia Canal was the only one of the original Delta Barrage works whose foundations were believed to be perfectly secure by the engineers of the Egyptian Irrigation Department. Nevertheless, when holding up a head of water considerably lower than that to which it has frequently been subjected the regulator failed within half an hour after the first indication of leakage beneath the foundations. From an official report on the subject we gather that the collapse was caused by the action of underground springs forming cavities in positions where it was quite impossible to detect them, and by water pressure upon the diminished section of the soil supporting the foundations. Thus when the gates were closed water carried away the subsoil to such an extent as to leave considerable areas of the foundations without support, upon which the work commenced to subside by its own weight, and the collapse of the entire structure naturally followed. The regulator, which was one of the works commenced about 1843 by the French engineers of the Khedive, will be replaced by new headworks with nine openings of 16 ft. 5 in. each and an associated navigation lock. According to Sir Hanbury Brown, the moral of the mishap is that it is as important to take soundings up-stream for the first indications of percolation as to make observations down-stream for detecting scour or erosion.

Refuse Destructors in America. AFTER twenty years of blundering with furnaces poorly adapted to their task, American cities are beginning to adopt refuse destructors of the latest improved British type. These true but uncomplimentary remarks are not our own, having been taken from the pages of a Transatlantic contemporary. At the present time American municipal engineers and authorities have still to learn the elementary lesson that house refuse can be made to burn itself instead of requiring coal to perform that function. The high state of efficiency to which destructor plant has been brought in this country is one among other satisfactory proofs of the fact that Britain has not entirely forgotten her *rôle* as a pioneer.

The New Waterway from Rotterdam to the Sea. NEARLY forty years ago it was decided to open up a navigable channel from the branch of the river known as the New Maas to a point north of the Hook of Holland. By the construction of banks and dredging operations part of the flow was directed into the new bed, with the result that by the combined action of the current and tides the channel was considerably deepened and the waterway was automatically maintained at the required depth. In the *Oesterr. Wochenschrift* Mr. A. von Horn discusses the results obtained, and compares the new navigable waterway in 1908 with its condition in 1879. The mean depth of the channel in the last-mentioned year was less than 1 metre below that of low tides, while to-day it is fully 8 metres below the same datum. Moreover, the navigation channel, formerly very irregular, has been widened to 200 metres approximately along its entire length. Nevertheless, it must be recognised that further deepening is not possible without constant dredging, because the deepest parts of the channel have given evidence, since 1891, of a marked tendency to silt up. To secure greater depth of water it seems necessary to increase the volume of flow through the channel, and concurrently to execute various training works.

Excavation by the Freezing Process. AT the Düsseldorf Congress of Mining and Metallurgy Mr. Zaeringer read a long paper on "The Freezing Process and Its Latest Developments." Tests conducted by the author showed the compressive strength of the frozen earth to be much higher than that of ice, as denoted by the following figures :—

Substance.	Compressive Strength at −15° C.
Ice	256 lb. per sq in.
Clay	324 lb. ,,
Clay with sand	405 lb. ,,
Sand with water	622 lb. ,,

Although it has been suggested that concrete deposited in the frozen soil should be mixed with substances intended to counteract the effects of cold, the author has always prepared concrete for use in connexion with the freezing process in the ordinary way, the only precaution taken being to use as little water as possible.

Berlin-Stettin Canal. A PAPER by Mr. Gerhardt discusses the actual state of work on the canal which will place Berlin in direct communication with the Oder by way of the Havel, which will be canalised for the purpose along part of its course. The work of excavation is stated to be in an advanced condition in the four sections into which the undertaking has been divided as a matter of structural administration. Some difficulties have occurred in places owing to marshy and very permeable soil, but none of these proved insuperable. The project includes two-tier locks and lifts at Nieder-Finow, and some works of artistic character, notably a four-track bridge carrying the Berlin-Stettin Railway over the new canal.

Surface Rendering for Concrete. AN American contractor writing to the *Engineering News* gives the following among other hints on the best method of plastering concrete walls and ceilings :—

"Dirt, just plain dirt, is the cause of much of the trouble experienced in making joints in concrete and making plaster coats stick. Any weak acid applied with a brush will clean the surface. A weak solution of hydrochloric acid is good. Wire brush work is expensive, and makes dust, and the richer the face the more dust. Wash the surface, not scrub it, with weak acid, and then with water. At the time the mortar is applied the wall should be damp, but not wet. Concrete to be plastered is wetted for the reason that the mortar coat may retain the moisture required to properly set it.

Having tried rich and lean mixtures, my practice is to use for a first coat a 1 : 3 fairly-dry mixture. It is put on as dry as the mason will consent to handle it, and applied with considerable pressure. The first coat is thin and scratched. Ten per cent. of hydrated lime makes the mortar easy to work, increases adhesion slightly, weakens the mortar, and more than doubles the time of setting. The addition of plaster of Paris weakens the mortar and lessens the time of setting to a degree that embarrasses the plasterer. Too rapid setting lessens adhesion.

The first coat should obtain its initial set and should be brushed with water before the second coat is applied. Like the concrete surface, it should be damp, but not wet. No matter how many coats are applied, considerable pressure must be exerted, and there must be as little working as possible. Every extra pass of trowel or float tends to consolidate the surface, draw the cement there, and weaken adhesion to the next lower face. Painting with a thin cement grout on the surface of the concrete and even between mortar coats is of no benefit. The best way to obtain the abominable shiny surface so many admire is to put on two cement grout paint coats and polish the last with a steel float. Such surfaces always craze."

Another Engineering Societies' Building. A COMMITTEE including representatives appointed by twelve different engineering societies have recommended the construction of a building for the scientific and engineering societies of Boston similar to the Engineering Societies' Building in New York. The proposed plan for the Boston building gives more consideration to social facilities than has been done in the earlier building. The upper floor, in addition to the library, will have a lounge and a billiard-room, and the building will provide accommodation for an engineers' club. The societies represented on the Committee are as follows :—Boston Society of Civil Engineers, American Institute of Electrical Engineers, American Society of Mechanical Engineers, American Institute of Architects (Boston chapter), National Electric Light Association (New England section), New England Association of Gas Engineers, Illuminating Engineering Society (New England section), New England Street Railway Club, New England Water Works Association, American Chemical Society (North-eastern section), Society of Chemical Industry, and Telephone Society of New England. The movement is one that might be extended to this country with much advantage.

Early Concrete Buildings in China. ACCORDING to a United States Consular Report, concrete has been used in China for several hundred years in the construction of buildings and walls. The practice is said to have originated with a French priest at Swatow, who constructed one of his chapels of lime concrete. In some instances split bamboo poles were employed, evidently as reinforcement and to prevent the development of cracks.

PLUMBERS *VERSUS* HEATING AND DOMESTIC ENGINEERS.

In various parts of the country during recent years disputes have arisen between different trade unions as to the particular trade by which certain work shall be done. Such disputes have often led to strikes which have brought suffering and loss not only on the trades directly interested, but on other trades which have had no part whatever in the origination of the disputes. It would be to the benefit of the community if a dispute of this kind could be settled without recourse to strikes, but unfortunately this is not always possible. The first duty of a trade union under modern industrial conditions is to look after the interests of its own trade, and if these conflict with the interests of another trade a dispute may arise between two unions, which cannot be settled as easily as a simple dispute between masters and men. In the building world there have been disputes of this kind between bricklayers and tilers, bricklayers and plasterers, and between other unions, and for some years the plumbers and the fitters have been at loggerheads. In Sheffield the dispute between these two branches of the building trade has reached an acute stage, and has led the operative plumbers to stop work on various buildings. "With the object of staving off these unfortunate disputes in the future" a Conference, convened by the Sheffield Master Builders' Association, was held early in June, and a report of the proceedings has been published in the July number of the *Journal* of the National Association of Master Heating and Domestic Engineers. In addition to four representatives of the Sheffield Master Builders' Association, there were at the Conference three representatives of each of the following societies:—The Sheffield Society of Architects, the National Association of Master Heating and Domestic Engineers, the National Union of Operative Heating and Domestic Engineers, the Sheffield Master Plumbers' Association, and the United Operative Plumbers' Association (Sheffield Branch).

The plumbers, both master and operative, may be regarded as the plaintiffs in the case, the engineers as defendants, and the architects and master builders as friends of the two parties, desirous of promoting an amicable settlement. The point at issue was as to the trade to which water-service pipes, other than lead, are to be allotted. By the operative plumbers it was pointed out that much work which was formerly done in lead is now being done in copper and iron, and that as a consequence work is being taken from the plumbing trade by the "fitters" or engineers. This is perfectly true, but the main argument advanced in support of the contention that the plumbers should retain the trade will not bear examination. To argue that because "there was only a change of material they could not see why there should be a change of men" is simply to give the case away. One of the master engineers had no difficulty in showing the absurdity of this line of reasoning:—"On the same lines," he said, "the joiner might claim the right to lay mosaic floors, because floors were previously constructed of wood." And an operative engineer aptly added that "a large number of window-frames were now made of iron, but joiners did not claim the work." Countless examples might be given, both within and without the building trade, of new methods and new materials leading to industrial changes of great importance and inflicting injury on some long-established trade or handicraft. But if the new methods and new materials are better adapted to the needs of the community than the older methods and materials, it is a waste of time and energy to obstruct their progress. The railway train has superseded the stage-coach, and the electric car the horse-tram, and no one will maintain that the horse-breeder ought to have the monopoly for the supply of railway engines and electric generating plant on the ground that, from time immemorial, he had supplied the motive power for horse-drawn vehicles. Some members of the community may sympathise with him in his loss of trade, but sympathy will not go far enough to scrap the railway engine and the electric dynamo and motor and to reinstate the horse.

One of the operative plumbers is reported to have said that "it had been proved that copper was a better material to use for pipes on large installations than lead." Now, if lead is thus being superseded by copper, it is certainly a misfortune for the plumber, but this does not warrant the demand that, since plumbers have had in the past a monopoly in the fixing of lead pipes, they must in the future be granted a similar monopoly in the case of copper and iron pipes. In our opinion, the resolution passed at a somewhat similar Conference held in Leicester in 1902 is all that the operative plumber can reasonably demand; it was then agreed "that in future all lead work be considered plumbers' work, but that a neutral line be taken as regards all iron, brass, copper, or other metal work, which may be executed by engineers or plumbers." By that resolution the engineers at the Sheffield Conference wished to abide. As far as the operatives are concerned, the question sooner or later will resolve itself into one of efficiency; if the plumber is or becomes an efficient workman in copper and iron, these metals will fall within his province by right of mastery, but if he is surpassed in skill by the fitter, the work will inevitably go to the latter. It may be said that the plumber who becomes a skilled workman in copper and iron will cease to be a plumber and will more properly be called a fitter, and there can be little doubt that one effect of the substitution of hard metals for lead, on a large scale, will be to swell the ranks of the fitters and engineers at the expense of the plumbers. Industrial changes of this kind are inevitable, and the sooner the fact is faced the better will it be for all parties. It is indeed hard for a trained workman to find his trade diminishing, and if he is advanced in years he may have neither the energy nor the opportunity to learn the new trade which is taking its place; but masters and men can do much to mitigate the hardship by seeing to it that the younger men at least have technical classes within their reach, at which skill in the use of the new materials may be acquired.

The master plumbers, like the operatives, complain of the loss of trade, but their grievance is of a different kind. All the three representatives of the Sheffield Master Plumbers' Association attributed the loss in some measure to the architects. One of them claimed that plumbers were able to carry out the work, "but latterly they had unfortunately not had an opportunity of quoting for it at all." Another was even more explicit. "It seemed to have become the custom for heating engineers," he said, "to submit schemes to the architects, instead of architects specifying what they should do; otherwise, the plumbers might jointly be taken into consideration." And the third representative echoed the first, as to having no opportunity of tendering for the bigger jobs, and added that "there would always be friction until a line of demarcation was drawn by the architects, separating the two trades." Two of the architects frankly admitted that architects cannot design the hot-water installations for large buildings, but look "to heating engineers to design and carry out the work." This admission, however, is not a complete and final answer to the plumbers' case. The master plumbers say, in effect, if complete plans and specifications of a scheme, however large it may be, are put before us, we and our operative plumbers can carry it out; architects have a sufficient knowledge of, say, sanitary plumbing, and can give us all the information we require for preparing a tender for work of that kind; let them give us the same amount of information and the same opportunity with regard to hot-water installations, and we shall be satisfied. Now, it must be confessed that, if it is advisable to prepare plans and specifications of the structural and sanitary parts of a building and to obtain competitive prices for the work, it is not an unreasonable suggestion that the same method shall be adopted for the more purely engineering details. And this is often done. We live in an age of specialisation. The modern architect is not an engineer, nor, it may be added, is the modern engineer an architect. Each can assist the other. In a large building or group of buildings there may be consulting engineers of different kinds collaborating with the architect, one designing the structural steelwork, another the electric lighting system, another the heating and ventilation, and so on. If each of these is as efficient in his special department as the architect in his, tenders can be obtained for each part of the work, and the tenders in each case will be based on the same data.

The other method of procedure, to which the Sheffield master plumbers objected, is to obtain a scheme and tender from a firm of enigneers, or competitive schemes and tenders from several firms, and to enter into a contract with one firm that it shall carry out its scheme at its own price. This is very much like asking architects to submit both designs and tenders in competition for a new building. To such an invitation the architect would reply that he is not a contractor, and that the interests of the building owner will be better served by employing him to design the building, and a master builder to erect it under his supervision. This, in other words, is the argument of the Sheffield master plumbers. We, they say, are neither civil engineers nor architects, but skilled tradesmen; we cannot design an intricate scheme of hot-water services, but, if the design is given to us, we can carry it out; keep the designing and the execution of the design in different hands, as you do in the case of the structural work.

Whether this method of dealing with the engineering details of a building will commend itself to engineering firms we are not at the moment concerned to inquire. The question is one which rises naturally out of the proceedings of the Sheffield Conference, but it is too important to be discussed at the end of an article. All that need be said is that in many cases the system of competitive schemes and prices gives engineering firms just cause for complaint; a low-priced scheme is often selected, merely because the price is low, and another and better scheme is rejected, although, were efficiency and real value taken into consideration, it would prove to be much the cheaper of the two.

FOREIGN AND COLONIAL.

Building Material, etc., Turkey.

The following information is from the report by the British Vice-Consul at Sidon (Mr. J. Abela) on the trade of that district in 1909, which will shortly be issued:—

"Attention is called to the increasing demand for building accessories of all kinds, and in particular to the opening for Portland cement, hydraulic lime, iron girders, tools of all kinds, and pumps."

The following information is from the report by the British Acting Vice-Consul at Tripoli, Syria (Mr. M. G. Harris), on the trade of that district in 1909, which will shortly be issued:—

"The construction of the Tripoli-Homs Railway will greatly increase the demand for buildings of every description, and there should be a valuable opening for the importation of hydraulic lime, Portland cement, and material of all kinds."

Plant, Material, etc., Austria-Hungary.

The *Oesterreichischer Zentral-Anzeiger* (Vienna) of July 3 states that the municipal authorities of Lemberg have decided to contract a loan of 14,000,000 kronen (about 583,000*l.*), to be applied, *inter alia*, to the following purposes:—Gasworks, 2,000,000 kronen; school buildings, 3,000,000 kronen; waterworks, 600,000 kronen; slaughter-houses, 260,000 kronen; market buildings, 1,200,000 kronen; street paving, 2,000,000 kronen; canal construction, 2,600,000 kronen.

Krone = 10d.

Hospital Building Material, Argentine Republic.

The *Boletin Oficial* of June 16 contains a decree accepting the tenders submitted by Messrs. Lavenás Poli y Compañía for the construction of three district fever hospitals in Rosario de la Frontera and General Güemes (province of Salta), and San Pedro (province of Jujuy). The contract price is 97,840 pesos currency (about 8,600*l.*) for each hospital.

GORLESTON CONGREGATIONAL CHURCH.—A new Congregational church has been erected at Gorleston. The pulpit has been carved by Mr. Howard, of Norwich. Mr. Scott Cockrell was the architect.

METROPOLITAN WATER BOARD.

THE usual monthly meeting of the Metropolitan Water Board was held on Friday last week, when the following amongst other matters were dealt with:—

Loan Sanctions.—The approval of the Local Government Board was reported to the loan of 5,300*l.* for improving the water supply to Esher and Claygate.

Appointment.—Mr. C. Fitzroy Doll was appointed the Board's representative on the Lee Valley Drainage Commission.

Research Work.—The Director of Water Examination on Research Work presented his fifth report. The results showed that the microbes of epidemic water-borne disease cannot be uniformly present in the new Thames and Lee water unless in very small numbers. The Water Examination Committee, commenting on the report, say:—"From the practical point of view this report is perhaps the most interesting and convincing of the whole series, for it shows how the whole supply can be under supervision previous to filtration. Since with over 160 filter beds in use, supplying water at the rate of over 200 million gallons a day, it is obviously impossible to test the output from each filter even once in the twenty-four hours, it follows that water is constantly going into supply, the purity of which has not been actually established by tests. To cover this point the pre-filtration method of examination has been elaborated. Representative samples of all the water antecedent to filtration are now examined bi-weekly. Owing to the remarkable equalising effect of storage this is almost equivalent to determining constantly the quality of the water supply previous to filtration. The results show, in the most convincing manner that London is not really drinking filtered raw river water, but water which antecedent to filtration has undergone a remarkable transformation for the better. We regard this pre-filtration check of the quality of the metropolitan water supply as of paramount importance."

METROPOLITAN ASYLUMS BOARD.

AT the fortnightly sitting of the Metropolitan Asylums Board on Saturday the following matters were dealt with:—

Tooting Bec Asylum.—The Local Government Board wrote sanctioning the proposal to enter into a contract with Messrs. W. J. Fryer & Co. for the carrying out of the necessary work in connexion with the installation of low-voltage metallic filament lamps at Tooting Bec Asylum without first advertising for tenders.

Darenth Asylum.—The Finance Committee reported on the estimates for additional workrooms at Darenth Asylum, the particulars of which were as follows:—Amount of tender, 5,196*l.*; digging and levelling site, 140*l.*; architect's charges, 290*l.*; quantity surveyor's charges, 100*l.*; clerk of works, 120*l.*; contingencies, 72*l.*—total, 5,920*l.* It was decided to apply to the Local Government Board for leave to incur the expenditure.

South Wharf.—It was also decided to ask the approval of the Local Government Board for the expenditure of 400*l.* for the provision of additional staff bathing and changing accommodation at South Wharf.

North-Western Hospital.—On the recommendation of the Hospitals Committee it was agreed, subject to the approval of the Local Government Board, to make alterations at this hospital according to plans prepared by the Engineer, so as to increase the mess-room accommodation for charge nurses.

Eastern Hospital.—The Architect reported that Messrs. F. & G. Foster had completed to his satisfaction the whole of the works in their contract for the provision of isolation rooms in the hospital. The total cost of the works was 1,944*l.* 4s. 9d., and the amount of the contract 1,941*l.*

LONDON COUNCILS.

Barnes.—The third section of Vernon-road, Mortlake, is to be made up. A Sub-Committee are considering matters in relation to the proposed erection of a dust destructor at the west end of the district, at an estimated cost of 14,000*l.* Plans have been passed for Mr. E. Alp for four houses in Coral-road, and for Messrs. Taylor & Cox for six houses in Coral-road.

Bermondsey.—Messrs. John Greenwood, Ltd., are to carry out alterations to the Town Hall at a cost of 418*l.* The following plans have been passed:—Messrs. W. T. Champion & Son, 1, Scylla-road, Peckham, S.E., millinery workroom, rear of 26-30, Camilla-road; Mr. B. J. Capell, 11-12, Blomfield-street, Broad-street-avenue, E.C., re-erection of Royal William beer-house, 90, Abbey-street; Mr. H. E. Barley, 38, Lime-street, E.C., cinematograph hall, St. James-road.

Hampstead.—The Borough Council at their meeting on July 14 instructed Mr. John Murray (who prepared designs for the proposed enlargement of the Town Hall seven years ago) to prepare drawings in pencil providing additional accommodation for the various departments of the Council by the erection of buildings on land recently purchased adjoining the hall. The proposed enlargement will probably meet all demands for at least twenty years.

Ilford.—Plans have been passed for Mr. A. W. Corby, on behalf of Mr. J. Leggett, for nine houses, Quebec-road.

Kensington.—Two refuges are to be constructed in the High-street, at an estimated cost of 115*l.* 167*l.* is to be spent in the kerbing, chanelling, and paving of portion of Ladbroke-grove. Siphon-trapped pan gullies are to be substituted for ninety-eight brick pit gullies, at an estimated cost of 350*l.*

Lambeth.—Plans have been passed as follow:—Messrs. James Watson & Son, fourteen houses, Idminston-road; Mr. James Wilson, three houses, Royal-circus, West Norwood; Mr. H. Payne Wyatt, architect (on behalf of Messrs. Francis & Son), motor-house, 21-3, Nursery-road, Brixton.

Lewisham.—Tenders are to be invited for paving and forming Collingtree-road. A plan, submitted by the Borough Surveyor, for paving and forming part of George-lane, at an estimated cost of 711*l.*, has been approved. Plans and estimates are to be prepared for paving the remainder of George-lane and Devonport-road. Messrs. Fry Brothers are to kerb and channel part of Ewhurst-road at 319*l.*, and Messrs. W. Pearce are to kerb and channel part of The Avenue at 356*l.* The Council has agreed to extend Limes-grove, High-road, Lewisham, at an estimated cost of 350*l.* Owing to this improvement it is intended to erect a new vicarage for St. Mark's (Clarendon-road) and a parish hall upon land adjacent. The following plans have been passed:—Messrs. W. J. Scudamore & Sons, six houses, Redruth-road; Mr. H. R. Hunter, twenty-three houses, Tannsfeld-road; Mr. James Watt, six houses, Bellingham-road; Messrs. Parnacotts, electric theatre, Sydenham-road; Mr. A. J. Roddis, nine houses, Manwood-road. Mr. F. E. Wright has lodged plans for buildings, George-lane.

Rickmansworth.—Plans have been passed as follow:—Alterations and additions to Co-operative Stores, new road for the Co-operative Society, Ltd.; Mr. N. T. Clark, additions to Rivermead, Harefield-road.

Shoreditch.—The Borough Council are to reconstruct gullies at the expense (1,000*l.*) of the London County Council.

Stoke Newington.—The Improved Wood Pavement Company, Ltd., is to carry out wood paving in Seven Sisters-road. The Post Office Authorities have now definitely selected a site in Manor-road for the new District Sorting Office.

Tottenham.—The Education Committee has instructed the Surveyor to prepare a modified scheme for a cooking depôt capable of providing 3,000 meals daily. The Urban District Council has passed the following plans:—Mr. P. Hart, factory, Braemar-road; Mr. John Sainsbury, addition to warehouse, 422-4, High-road; Messrs. J. A. Prestwich & Co., factory, Tariff-road.

Twickenham.—Mr. W. C. Phillips has lodged plans for a cinematograph theatre in Richmond-road.

West Ham.—The Education Committee have adopted plans prepared by their Architect for the enlargement of the Education Offices, at an estimated cost of 5,350*l.*

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ABBOT BEOMLEY.—Additions, St. Mary's Schools; Messrs. Barnsley & Sons, builders.

Ryland-street, Birmingham; Messrs. Sir A Webb & Ingram Bell, architects, Queen Anne's gate, S.W.

Adwick-on-Dearne.—School (4200*l.*); Mr W. V. Dixon, Secretary, Education Committee, West Riding County Council, Wakefield

Airdrie.—Town Hall (10,000*l.*); Surveyor Airdrie Town Council.

Atherstone. — School; Mr. J. Willmott, architect, 6, Waterloo-street, Birmingham

Ayr.—Club premises, shops, and workrooms, Sandgate and Boswell Park (4,000*l.*); Mr G. A. S. Abbott, Braemar, Ayr, on behalf of the South Ayrshire Liberal Club.

Bangor.—St. Paul's Schools; Mr. T. Gill, surveyor, Bangor.

Bedworth.—School; Mr. B. King, Secretary, Education Committee, Warwick County Council, Warwick.

Belfast.—Power-house (1,200*l.*); Mr. W. Dowling, builder, Cromwell-road, Belfast.

Birmingham.—Consumptive hospital; Sir Hallewell Rogers, Chairman, Board of Delegates, Birmingham Hospital Saturday Fund.

Blaydon-on-Tyne. — Wesleyan Methodist church and lecture-hall; the Trustees.

Boston.—Warehouse, Kirton Station; Mr. Hy. Kidd, architect, Solent House, Kirton.

Braintree.—Workshops for the Crittall Manufacturing Company

Burnham.—Golf club pavilion (1,500*l.*); Mr. R. G. Fry, architect, The Boulevard, Weston-super-Mare.

Burton-on-Trent. — Theatre; Mr. Thos. Jenkins, architect, Burton.

Bury.—Additions, workhouse (5,000*l.*); Mr. J. Isherwood, Clerk, Board of Guardians, Bury.

Camonstee.—Extensions, factory, Wardmill, for Messrs. M. C. Thompson & Co.

Carnwath.—Schools (2,000*l.*); Messrs. Traill & Stewart, architects, 1 Castlegate, Lanark.

Cathcart.—Six houses, Ormonde-avenue; Mr. A. Hunter, Hunterston House, Cathcart.

Cheshunt.—Secondary school (120 places); Mr. A. R. S. Hallidie, Secretary, Education Committee, Hertfordshire County Council, Hertford.

Chiddingford.—Kennels (5,000*l.*); Secretary, Chiddingford Hunt Committee.

Clermont.—Fifteen cottages (2,500*l.*); Surveyor, Dundalk Rural District Council.

Clydebank.—Hall (800*l.*); Trustees, St. Columba Episcopal Church.

Coleraine.—Carbis Castle; Messrs. Weatherley & Jones, architects, Suffolk-street, S.W.

Copmanthorpe.—Water tower, etc.; Messrs. Parkes & Sharp, builders, Peaseholm Green, York.

Cudworth.—School (3,000*l.*); Mr. W. V. Dixon, Secretary, Education Committee, West Riding County Council, Wakefield.

Denley and Edlington.—Schools (2,322*l.* and 12,000*l.* respectively); Mr. W. V. Dixon, Secretary, Education Committee, West Riding County Council, Wakefield.

Derby.—County Buildings (22,000*l.*); Surveyor, Derby County Council, Derby.

Dorchester. — Additions, church (2,000*l.*); Vicar, St. Mary's Church.

Dunoon.—Flats (10,000*l.*); Messrs. Dykes & Dale, architects, 65, West Regent-street, Glasgow.

Glasgow.—Additions, Thistle Rubber Mills, for Campbell Achnach & Co. (2,000*l.*); architect, Mr. C. H. Robinson, 49, Bath-street, Glasgow. Electric theatre, Bridgeton Cross (4,000*l.*); Mr. G. A. Boswell, architect, 53, Bothwell-street, Glasgow. Co-operative buildings (15,000*l.*); Messrs. Bruce & Hay, architects, 261, West George-street, Glasgow.

Go: ersal.—Extensions, Providence Mill, for Messrs. Briggs Brothers.

Goole.—Alterations, workhouse (4,000*l.*); Mr. G. England, Clerk, Goole Board of Guardians.

Gorleston.—Blind asylum buildings; Mr. O. Holmes, Castle-chambers, Norwich.

Grimethorpe Brierly.—Two schools (4,800*l.* and 1,000*l.* respectively); Mr. W. V. Dixon, Secretary, Education Committee, West Riding County Council, Wakefield.

Hatfield.—Four cottages (800*l.*); Mr. U. A. Smith, County Surveyor, Hatfield.

Haywards Heath.—Enlargement of school; Mr. E. Young, Secretary, Education Committee, East Sussex County Council, Lewes.

Hengoed.—Isolation hospital (8,452*l.*); Mr. Richd. Jones, builder, Aber.

Highgate (Yorks).—School (4,500*l.*); Mr. W. V. Dixon, Secretary, Education Committee, West Riding County Council, Wakefield.

Keighley. — Villa (1,100*l.*); Mr. D. W. Weatherhead, architect, Law-street, Keighley.

King's Lynn.—Conservative club; Mr. H. Tilson, architect, Paradise-parade, King's Lynn.

Leith. — Extensions, Messrs. Cochrane's factory (2,250*l.*); Mr. R. S. Henderson, architect, 20, Leith-walk, Leith.

Letchworth.—County Council School, Garden City; Mr. A. R. S. Hallidie, Secretary, Education Committee, Hertfordshire County Council, Hertford.

Lewes.—Girls' secondary school; Mr. E. Young, Secretary, Education Committee, East Sussex County Council, Lewes.

Leyland.—Nine houses, Cowling-lane, for the Leyland and Farrington Co-operative Society, Ltd.

Liverpool.—Alterations, high school for girls, North Liverpool (3,459*l.*); Messrs. Hull & Jamieson, builders.

Limekilns.—School; Dunfermline Parish School Board.

Lower Garnal.—Mission church (800*l.*); Mr. A. Ramsell, architect, Sedgley.

*See also our list of Competitions, Contracts, etc., on another page.

Meadow Bank.—School (2,400*l.*); Architect, care of Winsford and Middlewich Education Sub-Committee.

Melcombe Regis.—School (5,000*l.*); Messrs. Jesty & Baker, builders, Portland.

Merthyr. — Extensions, hospital (3,000*l.*); Messrs. D. & J. Jenkins, builders, Penydorren. Conversion of Cyfarthfa Castle into school (16,200*l.*); Messrs. Jones Brothers, builders, Treharris.

Mortlake.—Shop and flats, Cowley Estate; Mr. G. H. Flack, architect, 3, Great James-street, W.C.

Neilston (Upper Renfrewshire).—Mission hall, Holehouse; Mr. A. Martin, Holehouse.

New England.—School; Mr. H. Wilson, Secretary, Education Committee, Peterborough Town Council.

Newfield.—School (3,500*l.*); Mr. W. Rushworth, architect, Shire Hall, Durham.

Newlyn (Cornwall).—Bank for Messrs. Barclay & Co., Ltd.; Messrs. Perkins & Caldwell, architects.

New Malden. — School (4,380*l.*); Messrs. Jarvis & Richards, architects, Queen Anne's-gate, S.W.; Messrs. Kemp & Co., builders, Aldershot.

Newport (Mon.).—School (10,000*l.*); Mr. C. Ward, Town Hall, Newport.

Norfolk. — Billiard-room and addition, Heacham Hall; Mr. F. Sherrin, architect, 44, Finsbury-square, E.C.; Mr. W. F. Smith, builders, King's Lynn.

Penmaenmawr. — Parish hall; Mr. H. Hughes, architect, Penmaenmawr.

Poole.—School; Mr. C. Kisley, Secretary, Education Committee, Poole Town Council.

Pudsey.—School, Town End; Mr. W. Packer, Secretary, Education Committee, Leeds Town Council.

Read (Lancs).—Additions, church; Messrs. Grimshaw & Cunliffe, architects, Bank-buildings, Accrington.

Reading. — Kendrick School, corner of London-road and Sidmouth-street; Mr. H. T. Pugh, Secretary, Education Committee, Reading Town Council.

Riccarton.—Improvements at church (800*l.*) for the Rev. W. Tweedie.

Rochdale.—Alterations and extensions, Town Hall (2,075*l.*); Mr. S. S. Platt, Surveyor, Rochdale Town Council.

Ross.—School; Mr. J. Wiltshire, Secretary, Education Committee, Hereford County Council, Hereford.

Subden.—Baptist chapel (5,000*l.*); Mr. F. J. Parkinson, architect, 9, Richmond-terrace, Blackburn; Messrs. E. Lewis & Son, builders, Blackburn.

St. German's (Cornwall).—Proposed new Town Hall; Mr. H. A. Hoskin, Surveyor, St. German Rural District Council.

Shankhill.—Eighteen houses (5,000*l.*); Mr. P. J. Kinlen, builder, Shankhill.

Soton.—Additions, Royal Pier Pavilion (4,000*l.*): Mr. E. Cooper-Poole, Harbour Board Offices, Town Quay, Southampton.

Southampton.—Convenience, Asylum Green (500*l.*); Surveyor, Town Council. Destructor; Messrs. Goddard, Massey, & Warner, builders. Proposed school, French-street; Surveyor, Southampton Town Council. Chapel (2,341*l.*); Mr. J. Nichol, builder, 19, Buller-road, Batterne Park, Southampton. Entrance lodge and office (860*l.*); John Douglas, builder. The Town Council has passed the following plans:—Twelve houses, Newlands-avenue, for Messrs. Jurd, Sanders, & Christie; four houses, Highfield-lane, for Mr. J. Smith; alterations and additions, "Moorlands," Highfield, for Mr. C H. Brightiff; motor-car house, Lyon-street, for Messrs. Masters & Dominy. Plans have been lodged for Messrs. Weston & Burnett for six houses and shops, Manor Farm-road.

South Shields.—Riding School (2,500*l.*); Mr. H. Chapman, architect, 12, Grey-street, Newcastle.

Stafford.—Winding shops at dynamo works for Messrs. Siemens Brothers.

Staffs.—Tower, Newport Church; Messrs. Wilkins & Sons, builders, Bristol.

Stannington.—School (4,358*l.*); Mr. W. V. Dixon, Secretary, Education Committee, West Riding County Council, Wakefield.

Sunderland.—St. Gabriel's Church; Mr. C. A. C. Green, architect, 18, Norfolk-street, Sunderland.

Thames Ditton. — Extensions, Cottage Hospital, for the Governors.

Torquay.—The Town Council has passed plans as follows:—Motor garage, Abbey View, for Mr. Pym; alterations, Victoria and Albert Hotel; alterations, Western Hospital; alterations, Half Moon Hotel, for Mr. Johnson.

Tring.—Conversion of Market House into fire-station; Surveyor, Tring Urban District Council.

Tunbridge Wells.—Fire-station, Calverley Parade-mews; Mr. W. H. Maxwell, surveyor, Tunbridge Wells.

Wallsend.—Proposed baths (6,594*l.*): Mr. G. Hollings, Surveyor, Wallsend Town Council.

Walsall.—The Town Council has passed the following plans:—Extensions, St. Matthew's Church House, Temple-street, for the Vicar and Trustees; ten houses, Sutton-crescent, for Mr. J. Atkins; building line, Sutton-road, for Messrs. N. E. Best & Son.

Waterloo.—Schools; Messrs. Appleyard & Quiggin, architects, 67, Lord-street, Liverpool; Mr. J. Williams, builder, ollingwood-street, Liverpool.

Wath. — Additions, Factory-road School (3,658*l.*); Mr. W. V. Dixon, Secretary, Education Committee, West Riding County Council, Wakefield.

Weardale. — Infectious diseases hospital (1,956*l.*); Mr. J. Reid, builder, Frosterley.

Wednesbury.—Theatre; Messrs. Bishop & Grundy, architects, Wednesbury.

Weybridge.—Proposed technical institute; Mr. Ramsay Nares, Surveyor, Education Committee, Surrey County Council, Kingston.

Winchester.—Shops and club premises, Jewry-street, for the Winchester Corn Exchange Company.

Woking.—Additions, Church-street school (2,500*l.*); Messrs. Martin Wells & Co., builders.

Woking.—Additions, school, Monument-hill (1,189*l.*); Messrs. Kemp & Co., builders, Aldershot.

Yorks.—Additions, Balby Church (2,000*l.*); Mr. Temple Moore, architect, 37, Old Queen-street, S.W.

OBITUARY.

Mr. J. Mander.

The funeral took place at Overstone Church, Northants, on the 25th ult., of Mr. J. Mander, of Overstone Park, Northants, who for a period of forty-four years was Resident Architect and Surveyor for the estates of the late Lord Overstone and his daughter, the Baroness Wantage, in the counties of Northants, Cambs, Bucks, Leicester, and Berks, in which counties many new buildings and improvements have been designed and carried out, including restorations at Sywell, Overstone, and other churches, new schools at Overstone and elsewhere. In addition to the work on the above estates, he has designed and carried out numerous buildings, principally in the county of Northants for noblemen and gentlemen.

Mr. Banks.

The death on July 13 at Henton Lodge, Lewisham, is announced of Mr. William Coppard Banks, late of No. 5, Adelaide-place, King William-street, E.C., aged seventy-seven years. Mr. Banks made the designs for the restoration, with addition of a north aisle and a vestry, of Patshull Church, Staffs, 1874, and for the chancel screen, in hammered iron, erected in the church in memory of the late Earl of Dartmouth. He was the architect, 1870-9, of the churches of St. George, Lewisham, St. Mark, Lewisham (for 800 sittings), and St. George, Perry-hill, Catford Bridge, designed after the Decorated Gothic style, for 600 seats, and built at a cost of 8,000*l.* for the fabric.

Mr. Eachus.

The death on July 14 is announced of Mr. George Eedes Eachus, M.Inst.C.E., of Hughenden, Bush Hill, Winchmore Hill, and No. 39, Old Queen-street, Westminster, aged sixty-nine years. Mr. Eachus was Chairman of the Plans and Buildings Committee of the Edmonton Urban District Council.

APPLICATIONS UNDER LONDON BUILDING ACTS, 1894 to 1909.

THE London County Council at its meeting on Tuesday dealt with the following applications made under the London Building Acts (the names of the applicants are given between parentheses):—

Lines of Frontage and Projections.

Chelsea.—That the application of Mr. C. E Barry for an extension of the periods within which the erection of a verandah in front of No. 15, Chelsea-embankment, Chelsea, was required to be commenced and completed, be granted.—Consent.

Hackney, Central.—Erection of buildings on the western side of Chatham-place, Hackney, between Belsham-street and the Duke of Wellington public-house (Mr. H. W. Rowlandson).—Consent.

Hackney, South.—That the application of Mr. M. Rosenberg for an extension of the period within which the erection of one-story shops in front of Nos. 199 to 215 (odd numbers only), inclusive, High-street, Homerton, was required to be completed, be granted.—Consent.

Islington, North.—Retention of an illuminated projecting sign at No. 67, Stroud Green-road, Islington (Messrs. Wheeler Brothers).—Consent.

Kennington.—Erection of two projecting balconies in front of Nos. 22 and 24, Lower Kennington-lane, Kennington (Messrs. Greenaway & Newberry for Wayre & Son, Ltd.).—Consent.

Kennington.—The erection of a projecting one-story shop in front of Nos. 22 and 24, Lower Kennington-lane, Kennington (Messrs. Greenaway & Newberry for Wayre & Son, Ltd.).—Refused.

Norwood.—That the application of Mr. S. Woodward for an extension of the period within which the erection of houses with shops on the western side of Norwood-road, and dwelling-houses on the northern side of Trinity-road, Norwood, was required to be completed, be granted.—Consent.

Paddington, South.†—The erection of a sign board in front of No. 18, Hereford-road, Bayswater (Messrs. Newson & Hawkins for Debnam & Strahan, Ltd.).—Refused.

St. Pancras, West.—The erection of one-story shops in front of Nos. 74 and 76, Hampstead-road, St. Pancras (Messrs. Jura, Sanders, & Christie for the trustees of the late J. B. Forman).—Refused.

Strand.—That the application of Mr. G. Hornblower for an extension of the periods within which the re-erection of Nos. 18 and 20, Regent-street, Westminster, was required to be commenced and completed, be granted.—Consent.

Strand.†—Erection of a building upon the site of Nos. 16, 17, and 18, Ramillies-street, and No. 16, Marlborough-mews, Westminster, at less than the prescribed distance from the centre of the roadway of Ramillies-street (Mr. E. Keynes Purchase).—Consent.

Wandsworth.—Erection of a balcony in front of "The Hollies," No. 356, Upper Richmond-road, Putney (Mr. W. J. Renshaw for Mr. A. P. MacLarty).—Consent.

Wandsworth.—Erection of a greenhouse at "Oak Lodge," Beaumont-road, Wandsworth (Mr. A. H. Purcell for Mr. F. W. Samson).—Consent.

Wandsworth.—Erection of porches in front of Nos. 29, 58, and 62, Manville-road, Balham (Mr. W. C. Poole for the executors of the late A. Heaver).—Consent

Whitechapel.—Erection of a one-story addition at the rear of No. 59, Great Prescot-street, Whitechapel, at less than the prescribed distance from the centre of the roadway of Tenter-street South (Mr. H. O. Ellis for Mr. G. W. Ilsley).—Consent.

Width of Way and Lines of Frontage.

Chelsea.—That the application of Mr. C. B. Cleveland for an extension of the period within which the erection of an addition at the western end of Christ Church, Christchurch-street, Chelsea, was required to be completed, be granted.—Consent.

Hammersmith.—The erection of projections from the Mansion House-street frontage of Nos. 84, 86, and 88, King-street, Hammersmith (Messrs. Gilbert & Constanduros).—Consent.

St. Pancras, South.—Erection of a building on the site of Nos. 362 and 364, Gray's Inn-road, St. Pancras, and Nos. 2, 4, and 6, St. Chad's-place, at less than the prescribed distance from the centre of the roadway of St. Chad's-place, and with an oriel window on the Gray's Inn-road frontage (Messrs. Hart & Waterhouse for Willing & Co., Ltd.).—Consent.

Lines of Frontage and Construction.

Hackney, Central.—That the Council, on the application of Mr. W. J. Jordan, do extend the licence, dated June 22, 1909, in respect of a coffee stall of a temporary character in front of No. 345, Kingsland-road, Hackney.—Consent.

Strand.†—The erection of a steel structure to carry pipes over the public way of Ingestre-place, Broad-street, Westminster (Mr. A. Burr for Huggins & Co., Ltd.).—Refused.

Width of Way, Lines of Frontage, and Construction.

Kensington, North.—Alterations at Nos. 4a, 5, 6, 7, and 8, Ledbury-mews North, Kensington (Mr. C. Ll. R. Tudor for Mr. H. Ward).—Consent.

Marylebone, East. — The erection of a temporary building at Dean's-mews, Cavendish-square (Messrs. Olver & Co. for the Belsize London Agency, Ltd.).—Consent.

Paddington, North.—That the Council, on the application of Mrs. E. Smith, do consent to the retention of an external iron staircase in front of No. 3, Blomfield-place, Paddington.—Consent.

Width of Way and Deviation from Certified Plans.

Whitechapel.—Further deviations from the plans approved for the re-erection of a building known as the "Alma" Brewery, on the western side of Spelman-street, Whitechapel.

and the northern side of Booth-street (Mr. W. Stewart).—Consent.

Formation of Streets.

Hampstead.—That an order be sealed in duplicate and issued to Messrs. Worleys & Armstrong refusing to sanction the formation or laying out of a street in connexion with the proposed erection of buildings upon a site on the north-eastern side of Haverstock-hill, Hampstead, submitted with their application to the Council on behalf of Mr. J. J. Wheeler.—Refused.

Wandsworth.—That the Council do consent to the application of Messrs. Fasnacht & Beale for an extension of the time within which the roadway of a new street for carriage traffic to lead out of the western side of Streatham High-road to Guildersfield-road, Streatham, was to have been defined and thrown open to the public as a highway.—Consent.

Space at Rear.

Marylebone, East.—A modification of the provisions of Part V. of the London Building Act, 1894, as to the extension above the diagonal line directed to be drawn by sect. 41 of that Act, so far as relates to the erection of No. 5, Portland-place, St. Marylebone (Mr. P. W. Hawkins for the Town Properties Development Company, Ltd.).—Consent.

Space at Rear and Conversion of Building.

Limehouse.—The conversion of the Devonshire Arms public-house, Dupont-street, Limehouse, into tenements as shown on the plans (Mr. S. Clifford Tee for Mr. E. Hider).—Consent.

Deviation from Certified Plans.

Mile End.—Deviations from the plan certified by the District Surveyor, so far as relates to the proposed erection of a building upon the site of the Albert Arms public-house, and No. 5, Railway-place, Bethnal Green (Mr. W. Stewart for Mann, Crossman, & Paulin, Ltd.).—Consent.

Strand.—Deviations from the plan certified by the District Surveyor, so far as relates to the proposed re-erection of No. 60, St. James's-street, Westminster (Messrs. Treadwell & Martin for Messrs. G. E. Wallis & Sons).—Consent.

Building for the Supply of Electricity.

Peckham.—The erection of a building, to be used as an electricity substation, upon a site approached out of the western side of Hill-street, Peckham (Mr. C. Stanley Peach for the County of London Electric Supply Company, Ltd.).—Consent.

Alteration of Building.

St. George, Hanover-square.—The retention of a recess in a party wall at the Royal Insurance Company's building, Piccadilly (Messrs. J. Belcher, R.A., and J. J. Joass).—Consent.

Cubical Extent.

Paddington, North.—The raising of the roof at No. 1, Irongate Wharf-road and No. 12, Praed-street, Paddington, whereby the building would exceed in extent 250,000 cubic ft. (Messrs. Thomas & Thomas for Messrs. Ingram, Perkins, & Co.).—Refused.

Uniting of Buildings.

Dulwich.—Alterations at Nos. 141 and 143, Lordship-lane, Dulwich (Mr. W. H. Duffield for Mr. D. Greig).—Consent.

Islington, North.—The retention of an opening in the party wall between Nos. 102 and 104, Tollington-park, Islington (Mr. H. Goodchild for Mr. S. F. Hamlin).—Consent.

Strand.—A deviation from the plans approved for the uniting of Nos. 29 and 30A, Sackville-street, St. James, by an opening at the first-floor level so far as relates to alterations, including the formation of two additional openings, one at the first floor and one at the second floor (Mr. O. A. Bloxam for Miss M. Hawtrey).—Consent.

Uniting and Construction of Buildings.

City of London.—The uniting of Nos. 14, 16, and 18, Moorgate-street, City, with No. 20, Moorgate-street and the "White House," abutting upon Telegraph-street, and also the erection of an iron and concrete corridor between Nos. 14, 16, and 18, Moorgate-street and the "White House" (Mr. L. U. Grace for the Royal Mail Steam Packet Company).—Consent.

The recommendations marked † are contrary to the views of the metropolitan borough councils concerned.

CHAPEL, YNYSHIR.—The new Moriah C.M. Chapel, Ynyshir, was reopened recently. The building is built of local stone, with grey Forest of Dean stone dressings, at a cost of 4,000*l.* The architect is Mr. R. S. Griffiths, of Tonypandy, and the builder Mr. David Richards, of Ynyshir

GENERAL BUILDING NEWS.

SOUTHWARK CATHEDRAL RESTORATION.

The Bishop of Southwark asks for a total sum of 40,000*l.*, to include 7,000*l.* for structural repairs, and 30,000*l.* for maintenance of divine service and for a paid clerical staff, wherewith to effect a restoration of certain portions of the fabric which stand in urgent need of reparation, and did not come within the scope of the recent restoration and rebuilding of the nave. The proposed works will be intrusted to the superintendence of Mr. J. Oldrid Scott, F.R.I.B.A.

METHODIST CHURCH, EXETER.

A new United Methodist Church has just been erected at Mount Pleasant, Exeter. The buildings have been erected by Messrs. Westcott, Austin, & White, contractors, of Exeter, from the designs of Mr. Alfred J. Dunn, architect, Waterloo-street, Birmingham.

ELEMENTARY SCHOOL, MARSDEN.

The West Riding Education Committee has had erected at Marsden a new elementary school to accommodate 420 boys and girls. The building has been designed by the Committee's Architect, Mr. J. Stuart, and the cost was 6,190*l.*

GRAMMAR SCHOOL, YARMOUTH.

The new grammar school for boys at Yarmouth was publicly opened on Saturday last week by the Bishop of Norwich. The tradesmen concerned in the erection of the school were:—Mr. J. D. Harman, contractor for the building; the Bispham Hall Company, the terra-cotta work; Mr. West, plumber, decorator, etc.; Messrs. F. Braby & Co., Ltd., the zinc work; Messrs. Dawber, Townsley, & Co., Ltd., the slating; Messrs. G. N. Haden & Sons, the hot-water warming; Mr. A. R. Pank, the electric lighting; Messrs. Reynolds & Branson, Ltd., the laboratory fittings; Messrs. A. C. W. Hobman, Ltd., the tar paving. The architects were Messrs. Olley & Haward, of Great Yarmouth.

ZOOLOGICAL SOCIETY'S BUILDINGS.

The Zoological Society have removed from No. 3, Hanover-square, into their new quarters in their Gardens, Regent's Park, which have been built, after the plans and designs of Mr. John Belcher, R.A., near the northern end of Broad Walk. The buildings have been constructed, at a cost of about 17,000*l.*, of Portland stone for the lower story, and of purple Luton bricks for the portions above, with a Mansard roof covered with Delabole slates.

VICARAGE, SKETTY.

A vicarage at Sketty, near Swansea, is about to be erected, and Mr. Glendinning Moxham, F.R.I.B.A., architect, Swansea, has been instructed to prepare the plans for same.

SWIMMING-POND, DUNDEE.

A new swimming-pond at Dundee was opened recently. Mr. James Thomson, City Architect, designed the new establishment.

CINEMA HOUSE, OXFORD-STREET, LONDON.

This building, which has been erected by the London Cinematograph Company (1909), Ltd., at 225, Oxford-street, was inaugurated by the Duchess of Portland on July 14. The building has been erected by Messrs. J. Chessum & Sons, from designs by Mr. Melville S. Ward, F.R.I.B.A. The frontage is of Portland stone on the main thoroughfare. The interior of the theatre has been carried out in the Jacobean style; the auditorium (which has a depth of 87 ft., with a width of 65 ft., and a height of 25 ft.) being panelled in old oak (the work of Messrs. Elliott, of Newbury), relieved by a Xelstone frieze below the ceiling, and scroll work in plaster by Messrs. Clark & Co., Westminster Palace-road; the floor will seat over 500 persons, while the cantilever circle affords accommodation for some 100 more. Access to the circle is provided by a staircase, leading up from the vestibule; while an additional staircase gives direct means of egress into Hill's-place. The plumbing and sanitary work was carried out by Messrs. Spooner & Smith, Aldgate, E.C. The electrical installation has been carried out by Messrs. Clements & Sons and Messrs. Vaughan's Engineering Installations Company, Ltd., 106, Fenchurch-street, E.C., while the wrought steel electroliers and other metal fittings are by Messrs. Peyton & Peyton. The upper part of the building contains a range of offices for the use of the company, and a restaurant.

PADDINGTON INFIRMARY.

Paddington Guardians are to instruct Mr. E. Howley Sim, architect, 14, Norfolk-street, W.C., to submit an approximate estimate of the cost of adapting portion of the administrative block of the infirmary for the purpose of isolation wards.

ST. PAUL'S EYE HOSPITAL, LIVERPOOL.

New buildings for the St. Paul's Eye Hospital, Liverpool, are being erected upon a site at the junction of Oldhall and King Edward streets. Mr. John Clarke, F.R.I.B.A., Liverpool, is the architect.

PEARL LIFE ASSURANCE OFFICE, LEEDS.

The foundation-stone of the new building in Leeds for the Pearl Life Assurance Company, Ltd., was laid on the 14th inst. by the president and founder of the company. The total cost of the land and building will exceed 50,000*l.* The work is being carried out from the design and under the superintendence of William Bakewell, F.R.I.B.A., architect.

BUILDINGS IN LANARKSHIRE.

The following plans have been passed by the Sub-Committee on Plans of Houses and Buildings of the Lower Ward of Lanark:—Mr. W. C. Stirling Stuart, for erection of dwelling-house at Muirside Farm, Carmunnock; Messrs. J. Nimmo & Co., Ltd., for office buildings at Auchingeich, by Chryston; Mr. R. Milligan, for alteration of double cottage on Cumbernauld-road, Mollinsburn; and Mr. R. Provan, for villa south of Catheart-road, Westfield, Rutherglen.

TRADE NEWS.

Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester, have recently supplied their warm-air ventilating patent Manchester grates to the Tredworth Schools, Gloucester.

SANITARY AND ENGINEERING NEWS.

NEW RESERVOIR, CHINGFORD.

At the new reservoir which is being constructed at Chingford for the Metropolitan Water Board by Messrs. Chas. Wall, Ltd., Mr. W. B. Bryan, M.Inst.C.E., recently drove in the last runner for the puddle trench which surrounds the new reservoir. It is now nearly two years since this work was commenced, and it has given continuous employment to about 200 men, there having been driven in close upon 60,000 runners. The electric plant has been kept running day and night to provide the motive power for the pumps to prevent the work being flooded, and also for other machinery in connexion with the construction of this undertaking, which there is every possibility of being finished within the contract period of time.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.

Mr. A. Pole Small, F.R.I.B.A., Ross, Herefordshire, has taken into partnership Mr. Arthur Ashton, P.A.S.I., of Ilford, Essex, the style of the firm being Small & Ashton, architects and surveyors.

FIRE-STATION, CARDIFF.

The question of a new fire-station for Cardiff has just been under discussion by the Cardiff Watch Committee, when a joint report by the City Engineer, Mr. W. Harpur, and the Head Constable, Mr. William McKenzie, was considered. It was estimated that the proposed chief fire-station in Westgate-street would cost 13,066*l.* 5s. 7d., plus the value of the land, which was fixed at 21,400*l.* For the proposed subsidiary station at Beresford-road, Roath, the total cost was estimated at 5,666*l.* 3s. 9d., while for the proposed subsidiary station in Wellington-street, Canton, the estimated cost was the same. A motion by Mr. Morgan Thomas to affirm a previous resolution passed by the Committee that a new station be built in Cathays Park at a cost not exceeding 15,000*l.*, and that competitive designs be advertised for, was carried.

STREET IMPROVEMENT, BROADSTAIRS.

A Local Government Board inquiry was held at the Council Offices, Broadstairs, recently, into the application of the Broadstairs and St. Peter's Urban District Council for sanction to borrow 4,200*l.* for the widening of High-street and Charlotte-street, Broadstairs, and 800*l.* for sewerage works at Sowell-street. The Inspector was Mr. W. O. E. Meade-King, M.Inst.C.E. Mr. Howard Hurd is the Surveyor to the Council.

LECTURES ON LAW RELATING TO ENGINEERING.

The Council of the Junior Institution of Engineers (Incorporated), in conjunction with the Council of the Society of Engineers (Incorporated), have arranged for a course of six fortnightly lectures on the "Law Relating to Engineering," to be delivered by Mr. L. W. J. Costello, M.A., LL.B., Cantab., the first to be given on October 10 next.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, —; Auction Sales, xxii.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.

Competitions.

JULY 27. — **Clevedon.** — LAY-OUT OF PLEASURE GROUNDS.—The U.D.C. invite complete designs for laying out 11 acres of land as a pleasure ground. The total cost of the entire scheme not to exceed 3000*l*. An Ordnance plan of the site may be seen at the office of Mr. Hy. C. Fry, Clerk to the Council, Clevedon. Premiums of 20*l*. and 10*l*. respectively are offered.

AUGUST 23.—**Navan.**—COUNTY OFFICES.—Meath C.C. invite architects in Ireland to submit plans and specifications for the building of new County Offices at Navan. Copies of Sites Committee Report can be had on application from the Secretary, Meath C.C., Navan.

AUGUST 31.—**Gorleston-on-Sea.**—INSTITUTION FOR BLIND AND DEAF CHILDREN.—The Governors of the East Anglian Institution for Blind and Deaf Children invite plans and designs for a new building to be erected at Gorleston-on-Sea. The competition will be confined to architects having an office or residing in the areas of the following education authorities:—Cambridgeshire, Isle of Ely, Lowestoft, Norfolk, Norwich, East Suffolk, and Great Yarmouth. Copies of the instructions will be sent upon receipt of a remittance for 10*s*. Mr. D. O. Holme, Clerk of the Governors, Castle-chambers, Norwich.

SEPTEMBER 1. — **Kingstown, Co. Dublin.** — CARNEGIE LIBRARY.—The U.C. offer a first and second prize of 50*l*. and 20*l*. respectively for the best set of plans for the new Carnegie Library to be erected at Lower George's-street, Kingstown. Plans of the site, together with conditions of competition, can be obtained upon application to Mr. J. Sherlock Vaughan, Town Clerk, Town Hall, Kingstown, and on payment of 1*l*. 1*s*.

* SEPTEMBER 19. — **Maesteg.** — ALTERATIONS AND ADDITIONS.—The Maesteg Town Hall Committee invite designs for proposed alterations and additions to the Town Hall and Market Hall. See advertisement in this issue for further particulars.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JULY 25.—**Blaina, Mon.**—ADDITIONS, ETC.—Alterations, additions, and renovations to the Blaina Inn, Blaina, Mon., for Captain J. James, Wain Marsley, Nantyglo. Names to Mr. B. J. Francis, M.S.A., architect, Abergavenny.

JULY 25.—**Flamborough.**—VILLA.—Erection of a villa at Flamborough for Mr. F. Lowson. Plans, etc., can be seen at the office of Mr. G. F. Johnson, architect and surveyor, Westgate, Bridlington.

JULY 25.—**Hull.**—EXTENSION OF WORKSHOP.—The Corporation invite tenders for an extension of the workshop at St. Stephen-street Yard. Forms of tender and other particulars may be obtained at office of Mr. A. E. White, M.Inst.C.E., City Engineer, Town Hall.

JULY 25.—**Lossiemouth.**—CHURCH.—Various works required in erecting a church at Stotfield, Lossiemouth. Plans, etc., to be had from Mr R. B. Pratt, A.R.I.B.A., architect, 110, High-street, Elgin.

* JULY 25.—**New Malden.**—ADDITIONS, ETC.—The Kingston Guardians invite tenders for alterations and additions to Workhouse Buildings at Norbiton Common Farm, Kingston-road, New Malden. See advertisement in this issue for further particulars.

JULY 25. — **Pontypridd.** — UNDERGROUND CONVENIENCE.—The U.D.C. invite tenders for the construction of an underground convenience in Penuel-square. Drawings, etc., may be seen, and quantities, etc., obtained, on application to the Surveyor, Mr. W. E. Lowe, Council Offices, Pontypridd, upon receipt of a deposit of 2*l*. 2*s*. by Mr. J. Colenso Jones, Clerk to the Council, Municipal Buildings.

JULY 25. — **Treforest.** — EXCAVATING AND CONCRETING.—The Pontypridd U.D.C. invite tenders for excavating and concreting, together with sundry masons' work in the construction of engine and pump beds, at the Generating Station, Treforest. Plans, etc., may be seen, and forms obtained, at the office of the Surveyor, Mr. W. E. Lowe, upon receipt of a deposit of 1*l*. 1*s*. by Mr. J. Colenso Jones, Clerk to the Council, Municipal Buildings, Pontypridd.

JULY 26.—**Abertillery.**—PAINTING AND COLOURING.—The U.D.C. Education Committee invite tenders for painting and colouring the Central, Church of England, Queen-street, and Arael Schools. Specifications etc. may be had on application to Mr. N. J. Llewellyn, Secretary, Council Offices.

JULY 26. — **Ushaw Moor, near Durham.**—DISTRICT CHURCH.—The erection of a district church. Plans, etc., may be inspected on application to Mr. T. C. Stobart, Under-Manager, Ushaw Moor Colliery. Quantities may be obtained on application to Mr. Wm. Morton, quantity surveyor, 45, John-street, Sunderland.

JULY 26.—**Milford, Stafford.** — ENGINE-HOUSE FOUNDATIONS, ETC.—The Corporation invite tenders for the construction of new engine-house foundations and pump chamber at the waterworks, pumping-station, Milford. Plans may be seen, and specification and other particulars obtained, on application to Mr. W. Plant, A.M.Inst.C.E., Borough and Waterworks Engineer, Borough Hall on payment of 2*l*. 2*s*.

JULY 26. — **Warrington.** — FOUNDATIONS. — The Electricity and Tramways Committee invite tenders for turbo-alternator foundations and switchboard extension building. Specification, etc., may be obtained from Mr. F. V. L. Mathias, Borough Electrical and Tramways Engineer, Howley, where drawings may be seen

JULY 27. — **Barton-on-Humber.**—SUNDAY SCHOOL.—Tenders are invited for the different trades required in additions to the Congregational Sunday School, Barton-on-Humber. Plans, etc., can be seen on application to the caretaker of the Congregational Church.

JULY 27.—**Porthcawl.**—HOUSES.—Tenders are invited by the Westbourne-place Building Club, Porthcawl, for the erection of fourteen houses. Plans and specification may be had from the Secretary, Mr. D. J. Rees, Brynderwen, Porthcawl.

JULY 27. — **Twickenham.** — PUBLIC ELEMENTARY SCHOOL.—The U.D.C invite tenders for the erection of a public elementary school building, latrines, etc., in Hartington-road. The drawings, etc., may be seen, and quantities, etc., obtained, on application at the office of Mr. Fred W. Pearce, F.S.I., Surveyor to the Council, Town Hall, and the payment at office of Mr. H. Jason Saunders, Clerk to the Council, Town Hall, Twickenham, of a deposit of 3*l*. 3*s*.

JULY 27. — **Ynyswen.** — VESTRY.—Erection of a vestry at rear of 52, Baglan-street, Ynyswen, Treorchy, Rhondda Valley, for the Welsh Calvinistic Methodists. Plans, etc., may be seen at office of Mr. W. D. Morgan, M.S.A., architect, Pentre.

JULY 28. — **Cassiegills, Ellon.** — BARN RECONSTRUCTION, ETC.—Mason, carpenter, and slater works of reconstruction of barn wing and part of double byre wing. Plans, etc., may be seen with Mr. Hugh M'Donald, Land Steward, Ellon.

JULY 28.—**Huddersfield.**—RESIDENCE AND GARAGE.—Various works required in the erection of a residence and garage in Gledholt-lane. Drawings, etc., may be seen, and quantities obtained, at the offices of Messrs. John Kirk & Sons, architects, John William-street, Huddersfield.

* JULY 28.—**London, S.E.**—SORTING OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for sorting office at South Lambeth. See advertisement in this issue for further particulars.

JULY 28.—**Pudsey.**—WEAVING-SHED.—The several works required in the erection of a weaving-shed. Drawings, etc., may be seen, and quantities obtained, at the office of Messrs. C. S. Nelson & G. Birkinshaw, architects, Sun-buildings, 15, Park-row, Leeds.

JULY 29.— **Caerphilly.**— ALTERATIONS.— Additions and conversion of two houses into business premises in Cardiff-road. Plans, etc., can be seen at the office of Mr. Treharne Jones, Architect, Nelson, via Cardiff.

JULY 30.—**Halifax.**—WAREHOUSE AND STABLES.—Erection of a warehouse and stables at West Vale. Plans, etc., will lay for inspection, and quantities may be obtained, at offices of Messrs. Chas. F. L. Horsfall & Son, architects, Lord-street Chambers, from 26th inst.

JULY 30.—**Oswaldtwistle.**—RIDING SCHOOL, ETC.—East Lancashire Territorial Association invite tenders for erection of a riding school and alterations to existing headquarters of the 5th Lancashire Battery of the 1st East Lancashire Brigade, Royal Field Artillery. Plans, etc., can be obtained from the architect, Mr. William Greenwood, A.R.I.B.A., Victoria-chambers, Victoria-street, Blackburn, for the sum of 10*s*

* JULY 30.—**Surrey.**—ECONOMISER-HOUSE, ETC.—The Metropolitan Asylums Board invite tenders for erection of an economiser-house, and work in connexion therewith. See advertisement in this issue for further particulars.

AUGUST 1.—**Halifax.**—ARCADE, ETC.—The various works required in the erection of an arcade, billiard hall, and appurtenances on the Wards End Estate. Applications to be made, not later than 5 p.m. on August 1, to Messrs. Clement Williams & Sons, architects, Post Office-buildings, Commercial-street.

AUGUST 1.—**Oswaldtwistle.**—PAVILION, GRAND STAND, ETC.—Church and Oswaldtwistle Cricket Club Committee invite tenders for the erection of a brick pavilion and tea tent, hoarding, grand stand, etc. Plans may be seen, and specifications obtained from Mr. George Riley, architect, 24, Albert-street, Oswaldtwistle.

AUGUST 2. — **Leeds.** — FOUNDATIONS, ETC. — The Directors of the North-Eastern Railway invite tenders for providing foundations, benches, etc., in connexion with the carriage standing and washing sheds at Waterloo Sidings, Neville-hill, Leeds. Plans, etc., may be seen, and quantities and further information obtained from Mr. William Bell, the Company's Architect at York. Quantities supplied on personal application to parties tendering for the whole of the works.

AUGUST 2.—**Merthyr Tydfil.**—IMPROVEMENT OF SCHOOLS.—The Education Committee invite tenders for contracts:—(*a*) Improvements to Pentrebach School; (*b*) improvements to windows and floors of Abercanaid School; (*c*) eleven covered playsheds in certain schoolyards; (*d*) improvement of Penyrheolgerrig Infants' School. Particulars can be obtained at the Deputy-Surveyor's Office, Town Hall, on deposit of 2*l*. 2*s*.

* AUGUST 2.— **Watford.**—CHILDREN'S HOME.—The Watford Guardians invite tenders for a Children's Home in Ashby-road, Watford. See advertisement in this issue for further particulars.

AUGUST 3.— **Hastings.**—COVERED SHELTERS.—The Guardians of the above Union invite tenders for the erection of certain covered shelters at the Hastings Workhouse Infirmary. Drawings, etc., may be seen with Messrs. A. W. Jeffery & Son, architects, 1B, Havelock-road, Hastings.

AUGUST 3. — **Huddersfield.** — DAY AND SUNDAY SCHOOLS.—The whole or any of the works in the proposed new day and Sunday schools, Christ Church, Woodhouse, Huddersfield. Plans may be seen, and quantities obtained, at offices of Mr. W. Cooper, F.R.I.B.A., architect, 4, Kirkgate-buildings, Huddersfield.

AUGUST 3.—**Saundersfoot.**—DRILL HALL, ETC.—The Pembrokeshire Territorial Force Association invite tenders for the erection of a drill hall, lecture-rooms, caretaker's house, boundary walls, etc. Plans, etc., can be seen with Sergt.-Major Hobbs, at Saundersfoot, and at the office of Mr. J. Preece James, architect, Tenby.

* AUGUST 4.—**Bournemouth.**—ALTERATIONS TO POST-OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for alterations to head post-office, Bournemouth. See advertisement in this issue for further particulars.

* AUGUST 5. — **Watford.** — GRAMMAR SCHOOL.—The Governors of the Watford Grammar Schools invite tenders for new Grammar School for Boys, Watford. See advertisement in this issue for further particulars.

* AUGUST 6.—**Sunderland.**—TEMPORARY SCHOOL.—The Durham Education Committee invite tenders for supply and erection of temporary school at Horden Colliery. See advertisement in this issue for further particulars.

* AUGUST 8.—**Woolwich.**—OFFICERS' MESS.—The Secretary of State for War invites tenders for officers' mess and quarters at Shrapnel Barracks, Woolwich. See advertisement in this issue for further particulars.

* AUGUST 9.—**Chiswick.**—TELEPHONE EXCHANGE.—The Commissioners of H.M. Works and Public Buildings invite tenders for Telephone Exchange, Chiswick. See advertisement in this issue for further particulars.

* AUGUST 10. — **Hull.** — ALTERATIONS.—The Commissioners of H.M. Works and Public Buildings invite tenders for alterations to Hull Old Post-office. See advertisement in this issue for further particulars.

* AUGUST 15.—**Kent.**—SCHOOL.—The Kent Education Committee invite tenders for the erection of a school to accommodate 260 children. See advertisement in this issue for further particulars.

AUGUST 16. — **Macclesfield.** — GRAMMAR SCHOOL BUILDINGS.—Erection of new school buildings at the Grammar School. Plans, etc., can be seen at the office of Messrs. Willink & Thicknesse, architects, 14, Castle-street, Liverpool, on and after August 2, and quantities obtained on deposit of 1*l*. 1*s*.

* AUGUST 20.—**Greatham.**—SCHOOL.—The Southampton C.C. invite tenders for new Council school at Greatham. See advertisement in this issue for further particulars.

* SEPTEMBER 12.—**Swansea.**—TRAINING COLLEGE.—The Swansea Education Committee invite tenders for a Training College for Women at Glanmor, Swansea. See advertisement in this issue for further particulars.

NO DATE.—**Bow, North Devon.**—CHURCH ROOM.—Erection of a church room. Names to Mr. J. Archibald Lucas, F.S.I., A.R.I.B.A., architect and surveyor, Guildhall-chambers, Exeter.

NO DATE.—**Keighley.**—WEAVING SHED.—Tenders are invited for the several works required in the erection of a weaving shed at the Aireworth Mill's. Plans may be seen, and quantities obtained, at the offices of Messrs. R. B. Broster & Sons, architects and surveyors, Craven Bank-chambers, Keighley.

ENGINEERING, IRON, AND STEEL.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JULY 25. — **New Brighton.** — IRON PONTOONS.—Wallasey U.D.C. (Ferries Department) invite tenders for the construction, etc., of one or two iron pontoons for New Brighton Ferry Landing-stage. Further particulars and specifications may be obtained at the Ferries Manager's Office, Seacombe Ferry, where drawings may be inspected.

JULY 26.—**India.**—WROUGHT IRON.—The Directors of the Bengal and North-Western Railway Company, Ltd., invite tenders for the supply and delivery of 134 tons of wrought iron, as per specification, to be seen at the company's offices, 237, Gresham-house, Old Broad-street, London, E.C., for which a charge of 10s. is made (not returnable).

JULY 26.—**Matlock.**—CAST-IRON BANDSTAND.—The U.D.C. invite tenders for the supplying and fixing at the Haw Leys, Matlock, of a cast-iron, ornamental, covered bandstand, to accommodate thirty-five to forty. Mr. R. Taylor, Clerk to the Council, Town Hall.

JULY 26.—**Styal.**—REPLATING OF ACCUMULATOR.—The Guardians of the Chorlton Union invite tenders for the replating, etc., of the electric accumulator at the Cottage Homes, Styal, Cheshire. Specifications and particulars may be obtained at the offices of Mr. F. W. Page, A.M.Inst.C.E., consulting engineer, Clarendon-chambers, 14, St. Ann's-square, Manchester, upon payment of 2l. 2s.

JULY 27.—**Belfast.**—CONDENSING PLANT.—The Belfast Harbour Commissioners invite tenders for the construction, etc., in the electric light station, Old Channel-road, Belfast, of an independent surface condensing plant, with oil separator, etc. Outline specification and any further information required may be obtained from the Harbour Engineer, Mr. W. Redfern Kelly, M.Inst.C.E.

JULY 28. — **Dewsbury.** — ECONOMISER. — The Guardians require a specification and estimate for the supply and fixing of an economiser with 128 pipes. For further particulars apply to the Master at the Workhouse.

JULY 30.—**Mexborough.**—HEATING WORKS.—West Riding C.C. Education Department invite tenders for heating Mexborough Central Council School. Specifications may be had of Mr. W. R. Hudson, Education Offices, Mexborough, *vid* Rotherham, on receipt of a stamped addressed foolscap envelope.

AUGUST 2. — **Manchester.** — INDUCED DRAUGHT PLANT.—The Electricity Committee invite tenders for the supply, delivery, and erection at their Bloom-street Generating Station of an induced draught plant. Specifications, etc., may be obtained on application to Mr. F. E. Hughes, Secretary, Electricity Department, Town Hall. Further particulars can be obtained from Mr. S. L. Pearce, Chief Electrical Engineer, Dickinson-street.

AUGUST 2. — **Redhill.** — HEATING APPARATUS.—Reigate Education Committee invite tenders for the installation of heating apparatus at the Frenches-road Council Schools (two contracts). Specification, etc., may be inspected at the offices of Messrs. T. R. and V. Hooper, AA.R.I.B.A., Market Hall-buildings, Redhill. Forms of tender may be had on application from Mr. A. Lund Newell, B.A., Secretary, Municipal-buildings, Reigate.

AUGUST 5.—**India.**—STRUCTURAL STEELWORK, ETC.—The Directors of the Madras and Southern Mahratta Railway Company, Ltd., invite tenders for the supply of (1) structural steelwork, etc. (millwright shop); (2) 20,000 sleeper pots, with gibs and cotters, as per the specifications, which may be seen at the offices of the company on payment of 1l. 1s. for each specification (not returnable). Mr. H. Bonham-Carter, Secretary Company's Offices, 91, York-street, Westminster, S.W.

AUGUST 6.—**Ilminster.**—BRIDGE REPAIRS.—County Councils of Devon and Somerset invite tenders for strengthening and repairs to Devonshire or Newhaven Bridge, which spans the River Yearty. Drawings, etc., may be seen by appointment at the office of Mr. H. T. Chapman, County Surveyor, Queen-square, Bath, where quantities may be obtained on payment of 1l. 1s.

AUGUST 25.—**Belfast.**—EXPERIMENTAL PLANT.—The Library and Technical Instruction Committee invite tenders for experimental plant for the mechanical engineering department of the Municipal Technical Institute. Specifications, etc., may be consulted at the Institute until July 30, and copies obtained on payment of 1l. Mr. R. Meyer, Town Clerk.

AUGUST 31.—**Chelmsford.**—ELECTRIC AND GAS LIGHTING.—The Education Committee invite alternative tenders for the following at the Trinity-road Council School—(*a*) Supplying and fixing wiring for lighting by electricity; (*b*) supplying and fixing pipes for lighting by gas. Plans may be inspected until July 28 at the office of the Architect, Mr W. H. Pertwee, The Institute, London-road, Chelmsford, from whom all particulars may be obtained.

SEPTEMBER 1.—**Quebec, Canada.**—BRIDGE.—The Department of Railways and Canals invite tenders for the superstructure of a bridge across the St. Lawrence River, near the city of Quebec. Plans, etc., may be seen, and forms of tender obtained, at the office of the Quebec Bridge Board of Engineers, Canadian Express Building, Montreal, and at the Department of Railways and Canals, Ottawa.

MISCELLANEOUS.

* JULY 21.—**Shrewsbury.**—HEATING.—The Salop Education Committee invite tenders and schemes for heating a new school by low-pressure hot water. See advertisement in this issue for further particulars.

JULY 25. — **Darlington.** — SHOP FIXTURES.—The Darlington and Industrial Society, Ltd., invite tenders for shop fixtures required in branch premises, Hope Town. Plans, etc., can be seen upon application to the Secretary at the society's offices, Priestgate, Darlington.

JULY 25.—**Hull.**—BOUNDARY FENCE.—The Corporation invite tenders for the erection of a close-boarded boundary fence, 6 ft. 6 in. high, at the Evan Fraser Hospital. Forms of tender and other particulars may be obtained at office of Mr. A. E. White, M.Inst.C.E., City Engineer, Town Hall.

JULY 27.—**Hull.**—REDECKING PIER PROMENADE.—The Corporation invite tenders for the redecking of the raised promenade at the Victoria Pier, and for recaulking a part of the lower deck. The planking will be supplied by the Corporation. Forms of tender and other particulars may be obtained at the office of Mr. A. E. White, M.Inst.C.E., City Engineer, Town Hall.

JULY 27.—**Kearsley.**—REVOLVING SPRINKLERS.—The U.D.C. invite tenders for the supplying and fixing of revolving sprinklers, etc., at the main outfall sewage works. Drawings and particulars may be obtained at the office of the Engineer, Mr. Herbert Nuttall, C.E., 20, Market-street Bury.

JULY 28.—**Ely, Glam.**—WOODEN SHELTER.—Llandaff and Dinas Powis R.D.C. invite tenders for providing and erecting a wooden shelter, 12 ft. by 8 ft., at the Isolation Hospital, Ely. Plan, etc., may be seen at the Council's Offices, 20, Park-place, Cardiff.

JULY 29.—**Goring.**—CLEANSING OF EARTH-CLOSETS.—The R.D.C. invite tenders for the removal of the contents of earth-closets. Further information can be obtained on application to Mr. G. E. B. Rogers, Clerk to the Council, 9, Cross-street, Reading.

JULY 30.—**Bangour.**—GAS INSTALLATION.—Edinburgh District Board of Lunacy invite tenders for installation of gas at Middleton Hall, near Uphall. Specification, etc., may be obtained from the Clerk to the Board, or from Mr. Livingstone, clerk of works, Bangour village, Uphall, and a plan may be seen at the office of the Board, Castle-terrace, Edinburgh.

* JULY 30.—**Kent.**—REPAIRS, ETC., TO WOODWORK.—The Metropolitan Asylums Board invite tenders for repairs to and preservation of woodwork at Long Reach Hospital. See advertisement in this issue for further particulars.

AUGUST 3.—**Littlehampton.**—STEAM ROLLING, ETC.—The U.D.C. invite tenders for scarifying and steam rolling. Forms of tender can be obtained on application to the Council's Surveyor, Mr. H. Howard, F.S.I., Town Offices.

AUGUST 20.—**Stafford.**—SCHOOL FURNITURE.—Staffordshire Education Committee invite tenders for the supply of school furniture. Forms of tender will be forwarded on application (enclosing stamped addressed foolscap envelope) to the Director of Education (Requisitions Department), County Education Offices, Stafford.

PAINTING, etc.

JULY 25. — **Nottingham.**—PAINTING.—The Water Committee invite tenders for painting the engineman's cottages at Basford Pumping Station, Hucknall-road, Nottingham, and Bestwood Pumping Station, Mansfield-road, Bestwood. Specifications, etc., may be obtained from Mr. F. W. Davies, Water Engineer, St. Peter's Church-side, Nottingham, on deposit of 1l. 1s.

* JULY 26.—**London, N.W.**—PAINTING, ETC.—The Willesden District Council invite tenders for cleansing and painting works at electricity sub-station, Salusbury-road, Kilburn, N.W. See advertisement in this issue for further particulars.

JULY 26.—**Willesden.**—CLEANSING AND PAINTING.—The D.C. invite tenders for certain cleansing and painting works at the electricity sub-station, Salusbury-road, Kilburn, N.W. Specification, together with form of tender, and all further particulars, may be obtained upon application to Mr. O. Claude Robson, M.Inst.C.E., Engineer to the Council, Public Offices, Dyne-road, Kilburn, N.W.

JULY 28.—**Dundalk.**—PAINTING AND DECORATING CHURCH. — The painting and decoration of the chancel and side chapel ceilings of St. Patrick's Church. Designs, etc., can be inspected at St. Patrick's Church, Dundalk, on application to the Clerk of Works, or with Messrs. Ashlin & Coleman, architects, 7, Dawson-street, Dublin.

JULY 29.—**Haywards Heath.**—PAINTING AND REPAIRS.—The Asylum Visiting Committee of Brighton County Borough Asylum, Haywards Heath, invite tenders for repairs, painting, and other works to buildings on the Asylum Estate. Specifications, etc., can be obtained at the offices of the Surveyor to the Asylum, Mr. J. G. Gibbins, F.R.I.B.A., 3, Palace-place, Brighton.

JULY 29.—**Richmond, Surrey.**—PAINTING, ETC.—The T.C. invite tenders for painting, papering, and distempering at the workmen's dwellings, Manorgrove, Richmond. Further particulars may be obtained on application to the Borough Surveyor, Town Hall, Richmond, on depositing 1l. 1s.

JULY 30.—**Tonypandy.**—PAINTING, ETC.—Painting and decorating the Llwynypia and Tonypandy Conservative Club, Tonypandy, for the Committee. Specification may be seen at the Club.

AUGUST 4. — **Wolverhampton.**—PAINTING, ETC.—The Guardians invite tenders for painting the exterior wood and iron work at the Workhouse, according to specifications prepared by Mr. T. H. Fleeming, architect, Queen-square, Wolverhampton, to whom applications should be made for specification, etc.

AUGUST 8.—**Droxford.**—PAINTING AND REPAIRS.—The Guardians invite tenders for painting and general repairs at the Droxford Workhouse. Specifications may be seen at the office of Mr. H. Godfrey Pearson, Clerk, Bishop's Waltham, or at the Workhouse.

ROADS, SANITARY, AND WATER WORKS.

JULY 25.—**Little Lever.**—PAVING.—The U.D.C. invite tenders for paving, etc., Unicorn Inn corner at Little Lever. Plans, etc., may be seen, and quantities, etc., obtained, on application to Mr. W. J. Lomax, 11, Fold-street, Bolton, on deposit of 2l. 2s.

JULY 25.—**Tipton.**—SEWERS.—The U.D.C. invite tenders for the construction of main and subsidiary sewers, together with the manholes etc. (contracts Nos. 2A and 3A). Specification, etc., to be seen, and quantities obtained, upon payment of 3l. 3s., on application to Mr. Jno. H. Stockdale, Clerk, Clerk's Offices, Public Offices, Tipton.

JULY 26.—**Northallerton.**—BOREHOLES.—The U.D.C. invite tenders for the sinking of ten boreholes in the valley of the Oak Dale Beck on the site of a proposed reservoir, about seven miles from Northallerton Railway Station (contract No. 1). Plan, etc., may be seen with the Engineer, Mr A. M. Fowler, M.Inst.C.E., No. 1, St. Peter's-square, Manchester.

JULY 26. — **Pinxton.** — MAKING GOOD.—Making good Wharf-road, Pinxton. Specifications and other particulars may be obtained, on deposit of 1l., from Mr. Henry Silcock, 67, Westgate, Mansfield.

JULY 27.—**Cardiff.**—PRIVATE STREET WORKS.—For making-up parts of Northumberland-street, Fairfield-avenue, Jonkers-lane, etc. Drawings, etc., may be seen, and forms obtained, at the City Engineer's Office, City Hall, Cardiff.

JULY 27.—**Pelling.**—STREET WORKS.—The U.D.C. of Pelling invite tenders for the formation and making good of certain streets at Pelling, Bill Quay, and Wardley. Plans, etc., may be seen at the office of the Surveyor any morning.

JULY 27. — **Gilfach Bargoed.** — REPAIRING AND MAKING-UP.—Repairing and making-up the roadway of Maesygraig-street, Gilfach Bargoed, for Mr. A. C. Thomas, Cardiff. Specification, etc., may be obtained on application to Mr. Idris Leyshon, architect and surveyor, 7, Hanbury-road, Bargoed.

JULY 27.—**Prestwich.**—STONEWARE SEWER.—The U.D.C. invite tenders for the construction of a 9-in. stoneware sewer in Hilton-lane. The plan, etc., may be seen at the office of the Surveyor, Chester Bank, Prestwich, between 9 a.m. and 11 a.m., and quantities and any further information obtained on payment of 10s. 6d.

JULY 29.—**Beal and Featherstone.**—ASPHALTING.—Asphalting playgrounds at Beal Council School (near Knottingley), and North Featherstone-lane Council School, Featherstone. Specifications, etc., may be obtained from Mr. Charles Harris, Education Offices, Knottingley.

* JULY 30.—**Surrey and London.**—ROADS.—The Metropolitan Asylums Board invite tenders for repairs and alterations to roads in Surrey, and road-repairing and tar-paving works in London. See advertisement in this issue for further particulars.

AUGUST 6.—**Barlborough.**—SEWERAGE AND SEWAGE-DISPOSAL WORKS.—Clown R.D.C. invite tenders for the provision and laying of earthenware pipe sewers; also for the construction of tanks, filter, and other appurtenant works. Drawings may be seen at the office of Mr. J. T. Pears, Engineer and Surveyor to the Council, Hollin Hill, Clown, by appointment, and copies of the conditions, etc., may be obtained on deposit of 2l.

AUGUST 9. — **Aldeburgh.** — MAKING-UP.—The T.C. invite tenders for making-up parts of Lee-road, The Terrace, Park-lane. Plans may be seen, and specification, etc., and further particulars obtained, at the office of Mr. John C. Gordon, Borough Surveyor, Town Hall, Aldeburgh, upon payment of 2l. 2s.

SEPTEMBER 19.—**Cardiff.**—IMPOUNDING RESERVOIR.—The Corporation invite tenders for the construction and completion of the "Llwynon" Impounding and Storage Reservoir. Names to be sent at once to the Engineer, giving particulars of contracts carried out by them. Drawings may be seen, and specification, etc., obtained from the Engineer, Mr. C. H. Priestley, M.Inst.C.E., City Hall, Cardiff, after August 9, on the payment of a deposit of 50l. to the City Treasurer and Controller.

NO DATE.—**Pontefract.**—FOOTPATHS, ETC.—Works required to footpaths, carriageways, etc., in Oak-street, Elm-street, Ash-street, Beech-street, and Church Balk-lane, Pontefract. Plans may be inspected, and quantities obtained, at offices of Messrs. Garside & Pennington, architects and surveyors, Ropergate, Pontefract; Central-chambers, Castleford.

STONES, MATERIAL, AND STORES.

JULY 25. — **Dublin.** — MACHINERY OILS.—The Corporation invite tenders for oils for the Corporation Electricity Works, Pigeon House Fort. Specification, etc. (price 5s.), can be obtained from Mr. Henry Campbell, Town Clerk, Town Clerk's Office, City Hall.

JULY 26.—**India.**—RAILWAY MATERIAL.—The Agents for the Sind Light Railways, Ltd., invite tenders for the supply of various materials. Specifications may be obtained from Messrs. Molesworth & Molesworth, 14, Howick-place, Westminster, S.W., on payment of 7s. 6d. for each specification (not returnable).

JULY 27. — **Dover.** — RHENISH BASALT STONE.—The Guardians invite tenders for the supply of about 500 tons of Rhenish basalt stone. Specification, etc., can be obtained on receipt of a stamped addressed foolscap envelope, from Mr. Eugene Carder, Clerk, 17, Market-square.

JULY 30.—**Arundel.**—SURFACE FLINTS.—The T.C. invite tenders for the supply and delivery of 350 cubic yds. of clean hand-picked surface flints. Form of tender and particulars may be obtained of the Borough Surveyor, Mr. E. F. Farrington, Town Hall.

AUGUST 1. — **Kettering.** — STONEWARE PIPES.—The R.D.C. invite tenders for stoneware pipes on forms to be obtained of Mr. O. W. Gillson, Surveyor, Market-street, Kettering.

AUGUST 2.—**Dover.**—MATERIALS AND LABOUR.—The T.C. invite tenders for the supply of stores, materials, and labour in the trade of "Founder." Schedule, etc., can be obtained on application to Mr. R. E. Knocker, Town Clerk, Town Clerk's Office, Castle Hill-road.

AUGUST 3.—**Littlehampton.**—FLINT.—The U.D.C. invite tenders for the supply and delivery of 400 cubic yds. of clean hand-picked land flints, broken to pass through a 2-in. gauge. Forms of tender can be obtained on application to the Council's Surveyor, Mr. H. Howard, F.S.I., Town Offices.

SEPTEMBER 13.—**Queensland.**—STEEL RAILS AND FISHPLATES.—The Commissioner for Railways, Queensland, invites tenders for the supply of 10,970 tons of steel rails and fishplates, to be delivered at Brisbane and Rockhampton. Drawings, etc., may be obtained on personal application at the office of the Executive Engineer to the Agent-General for Queensland, 409, Strand, London, W.C.

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*FREEHOLD BUILDING ESTATE, EALING—At the Mart	G. F. Harrington	July 27
*DEALS, BATTENS, BOARDS, TIMBER, Etc.—Great Hall, Winchester House, E.C.	Churchill & Sim	July 27
*FREEHOLD BUILDING SITE, DALSTON—At the Mart	William Stevens	July 27
*FREEHOLD BUILDING LAND—At Granville Hotel, Bexhill-on-Sea	S. Walker & Son	Aug. 31

PATENTS.

APPLICATIONS PUBLISHED.*

6,584 of 1909.—Herbert Gothard Crabb: Hinged sliding windows.

14,171 of 1909.—Antoni Klempnerowski: Cowls for increasing the draught in chimneys or ventilation shafts.

14,374 of 1909.—Herbert James Haskins: Drain-pipe joints and the like.

14,671 of 1909.—Bertram Thomas, Eustace Thomas, Edward Morton Holme: Cranes and the like.

14,713 of 1909.—John Henry Marsh: Window holders for sliding sashes.

14,774 of 1909.—Hugh Wright Beckton: Sash windows for facilitating cleaning thereof.

14,781 of 1909.—Benjamin James Tatham: Stoves or firegrates.

15,056 of 1909.—John Henry Prugh and the American Floor Surfacing-Machine Company: Floor-surfacing machines.

15,273 of 1909.—Vincent Stanley Leigh: Suspension cables or supports.

16,257 of 1909.—Mary Ann Ince: Struts for floor joists.

21,295 of 1909.—James Pears and Robert Creighton: Attachment for saw-sharpening machines.

26,672 of 1909.—Joseph Lawson Snowball: Lift latch.

28,776 of 1909.—The International Bauaustrocknungsgesellschaft m.b.H. and Friedrich Paetsch: Apparatus for drying damp rooms.

79 of 1910.—Arthur Linderman: Tongueing and grooving devices for use with lumber-joining machines.

1,896 of 1910.—Carl Joseph: Fasteners for use on walls, partitions, and the like.

7,802 of 1910.—Ludwig Pollaert: Devices for connecting scaffold poles.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

July 1.—By G. B. HILLIARD & SON (at Chelmsford).

Great Baddow, Essex.—Corner plot, 1 a. 1 r. 6 p., f. £100

By CRASKE & SONS (at Colchester).

Kirkby-le-Soken, Essex.—Sadlers Farm, 75 a. 1 r. 13 p., f. 1,300
Nortons or Grays Farm, 35 a. 2 r. 1 p., f. 950
Arable land, 11 a. 3 r. 39 p., f. 315
Walton-on-the-Naze, Essex.—Arable and pasture, 11 a. 3 r. 19 p., f. 350

By G. H. PETTY (at Lancaster).

Gressingham, Lancs.—Higher Snab Farm, 196 a., f. 2,310

By ALFRED PRESTON (at Framlingham).

Ashfield, Suffolk.—Felgates Farm, 73 a. 2 r. 17 p., f. 760

By MERRY & CO. (at Northampton).

Worlingworth, Suffolk.—Poplar Farm, 41 a. 2 r. 15 p., f. and c. 600
Milton, Northants.—The Grove Farm, 52 a., f. 3,68[illegible]
Old, Northants.—Freehold farm, 113 a. 3,295

July 4.—By WILKINSON, SON, & WELCH (at Brighton).

Rottingdean, Sussex.—The Coastguards Station, f. 850
High-st. Mill Cottages and Fire Brigade Station, f. 220
Steyning-rd. Eastfield, f. 1,100
The Geisha Cottage, f. 180
High-st., Pelham House, f.g.r. 6l., 15s., reversion in 58 yrs. 170
Steyning-rd., plot of land, f. 115

July 5.—By S. MEALING MILLS (at Lowestoft).

Carlton Colville, Suffolk.—Ivy House Farm, 53 a., f. 1,600

By CHALK (at Newmarket).

Borough Green, Cambs.—Hall Farm, 283 a. 3 r. 29 p., f. 6,300
Arable land, 7 a. 0 r. 27 p., f. 126
Fourteen cottages, f. 765
Small holding, 27 a. 1 r. 35 p., f. 415

July 7.—By GRIMLEY & SON (at Birmingham).

Alvechurch, Worcester.—Richmond House and 8 a. 0 r. 32 p., f. 860
Smethwick, Stafford.—34 and 36, Cape-hill (s.), f., y.r. 95l. 1,505
35 and 36, Grange-rd., u.t. 85 yrs., g.r. 4l. 10s., w.r. 46l. 16s. 380
108 and 109, Shireland-rd., u.t. 80 yrs., g.r. 7l. 7s. 9d., w.r. 52l. 16s. 455

July 11.—By F. E. EILOART.

Hampstead-rd.—13 and 14, Netley-st., u.t. 4½ yrs., g.r. 12l. 12s., y.r. [illegible]l. 110
22, 23, Netley-st, and 1, Williams-mews, u.t. 5 yrs., g.r. 9l. 5s., y.r. 100l. 200
Camden Town.—Arlington-rd., f.g.r. 1l. 10s., reversion in 32 yrs. 140
Arlington-rd., f.g. rents 8l., reversion in 2 yrs. 435
207 Arlington-rd., f., y.r. 30l. 320

*All these applications are in the stage in which opposition to the grant of a patent upon them can be made.

By THOLE & NEWMAN.

South Kensington.—82, West Cromwell-rd., u.t. 58 yrs., g.r. 12l., p. £70

By RENDELL & SAWDYE (at Kingsbridge).

Stokenham, Devon.—Dunstone Farm, 81 a. 2 r. 16 p., f. 2,415

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s for shops; ct. for court.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£ s. d
Best Stocks	1 9 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Picked Stocks for Facings	2 10 0	D'ble Stretchers	16 7 6
Flettons	1 7 0	Double Headers	13 7 6
Best Fareham Red	3 12 0	One Side and two Ends	17 7 6
Best Red Pressed Ruabon Facing	5 0 0	Two Sides and one End	18 7 6
Best Blue Pressed Staffordshire	3 15 0	Splays & Squints	15 17 6
Do. Bullnose	4 0 0	Best Dipped Salt Glzd. Str'tch'rs	10 17 6
Best Stourbridge Fire Bricks	3 14 0	Headers	10 7 6
GLAZED BRICKS.		Quoins, Bullnose, and Flats	14 7 6
Best White and Ivory Glazed Stretchers	10 17 6	D'ble Stretchers	16 7 6
Headers	10 7 6	Double Headers	13 7 6
Quoins, Bullnose, and Flats	14 7 6	One Side and two Ends	17 7 6
		Two Sides and one End	18 7 6
		Splays & Squints	15 17 6

Second Quality White and Dipped Salt Glazed, £1 5s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6	6 per yard delivered.
Thames Ballast	5	0 ,, ,,
Best Portland Cement	28	0 per ton, ,,
Best Ground Blue Lias Lime	19	0 ,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

Per Ft. Cube.	s. d.
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 1
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 2½

Per Ft. Cube, Delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Red Corsehill in blocks	2 2
Beer in blocks	1 6	Closeburn Red Freestone	2 0
Greenshill in blocks	1 10	Red Mansfield Freestone	2 4
Darley Dale in blocks	2 4		

YORK STONE—*Robin Hood Quality.*

Scappled random blocks	2 10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3
6 in. rubbed two sides ditto, ditto	2 6
3 in. sawn two sides slabs (random sizes)	0 11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½
1½ in. to 2 in. ditto, ditto	0 6

Per Ft. Cube, Delivered at Railway Depôt.

Scappled random blocks	3 0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto	3 0
3 in. sawn two sides slabs (random sizes)	1 2
2 in. self-faced random flags	0 5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20×10 best blue Bangor	13 2 6	20×10 best Eur'ka unfading green	15 17 6
20×12 ditto	13 17 6	20×12 ditto	18 7 6
20×10 1st quality ditto	13 0 0	18×10 ditto	13 5 0
20×12 ditto	13 15 0	16×8 ditto	10 5 0
16×8 ditto	7 5 0	20×10 permanent green	11 12 6
22×10 best blue Portmadoc	12 12 6	18×10 ditto	9 12 6
16×8 ditto	6 12 6	16×8 ditto	6 12 6

TILES.

At Railway Depôt.

	s. d.		s. d.
Best plain red roofing (per 1000)	42 0	Best "Rosemary" brand plain (per 1000)	48 0
Hip and Valley (per doz.)	3 7	Best Ornamental (per 1000)	50 0
Best Broseley (per 1000)	50 0	Hip (per doz.)	4 0
Do. Ornamental (per 1000)	52 6	Valley (per doz.)	3 8
Hip and Valley (per doz.)	4 0	Best "Hartshill" brand, plain sand-faced (per 1000)	50 0
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57 6	Do. pressed (per 1000)	47 6
Do. Ornamental (per 1000)	60 0	Do. Ornamental (per 1000)	50 0
Hip (per doz.)	4 0	Hip (per doz.)	4 0
Valley (per doz.)	3 0	Valley (per doz.)	3 6
Best Red or Mottled Staffordshire do. (Peakes) (per 1000)	51 9	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental do. (per 1000)	54 6	Hand-made sand-faced (per 1000)	45 0
Hip (per doz.)	4 1	Hip (per doz.)	4 0
Valley (per doz.)	3 8	Valley (per doz.)	3 6

WOOD.

BUILDING WOOD.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14 0 0	... 15 10 0
Deals: best 3 by 9	13 10 0	... 14 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 10 0	... 12 10 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best.
Battens: seconds	0 10 0	,, ,,
2 in. by 4 in. and 2 in. by 6 in.	9 10 0	... 10 10 0
2 in. by 4½ in. and 2 in. by 5 in.	9 0 0	... 10 0 0
Foreign Sawn Boards—		
1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	,,
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5 0 0	... 5 10 0
Seconds	4 10 0	... 5 0 0
Small timber (8 in. to 10 in.)	3 17 6	... 4 0 0
Small timber (6 in. to 8 in.)	3 5 0	... 3 10 0
Swedish balks	2 12 6	... 3 0 0
Pitch-pine timber (30 ft. average)	4 10 0	... 5 5 0

JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in.	24 10 0	... 25 10 0
3 in. by 9 in.	22 10 0	... 23 10 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	... 18 0 0
Second yellow deals, 3 in. by 11 in.	19 0 0	... 20 0 0
,, 3 in. by 9 in.	18 0 0	... 19 10 0
Battens, 2½ in. and 3 in. by 7 in.	14 0 0	... 15 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	14 0 0	... 15 0 0
Battens, 2½ in. and 3 in. by 7 in.	1 10 0	... 12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 10 0	... 22 10 0
Do. 3 in. by 9 in.	18 10 0	... 19 10 0
Battens	14 0 0	... 15 0 0
Second yellow deals, 3 in. by 11 in.	16 10 0	... 17 10 0
Do. 3 in. by 9 in.	15 0 0	... 16 0 0
Battens	11 10 0	... 12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	... 14 10 0
Do. 3 in. by 9 in.	13 0 0	... 14 0 0
Battens	10 10 0	... 11 0 0
White Sea and Petersburg—		
First white deals, 3 in. by 11 in.	15 0 0	... 16 0 0
,, ,, 3 in. by 9 in	14 0 0	... 14 10 0
Battens	11 10 0	... 12 10 0
Second white deals, 3 in. by 11 in.	14 0 0	... 15 0 0
,, ,, 3 in. by 9 in.	13 0 0	... 14 0 0
Battens	10 10 0	... 11 0 0
Pitch-pine: deals	19 0 0	... 21 0 0
Under 2 in. thick extra	0 10 0	... 1 0 0
Yellow pine—First, regular sizes	44 0 0	upwards.
Oddments	32 0 0	,,
Seconds, regular sizes	33 0 0	,,
Oddments	28 0 0	,,
Kauri Pine—Planks, per ft. cube	0 3 6	... 0 5 0
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 3 0	... 0 3 9
Small ,, ,,	0 2 6	... 0 2 6
Wainscot Oak Logs, per ft. cube	0 5 6	... 0 6 0
Dry Wainscot Oak, per ft. sup. as inch	0 0 8½	... 0 0 9½
¾ in. do. do	0 0 7	... —
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 10	... 0 1 1
Selected, Figury, per ft. super as inch	0 1 6	... 0 2 6
Dry Walnut, American, per ft. super. as inch	0 0 10	... 0 1 0
Teak, per load	18 0 0	... 22 0 0
American Whitewood Planks, per ft. cube	0 4 0	... 0 5 0
Prepared Flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	... 0 17 0
1 in. by 7 in. yellow, planed and matched	0 14 0	... 0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	... 1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	... 0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	... 0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	... 0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	... 0 13 6

WOOD (continued).

JOINERS' WOOD (continued)—	Per square. £ s. d.	£ s. d.
Prepared Flooring (continued)—		
1 in. by 7 in. " "	0 14 0 ...	0 18 0
¾ in. by 7 in. white " "	0 10 0 ...	0 11 6
1 in. by 7 in. " "	0 12 9 ...	0 15 0

in. at 4d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	7 0 0 ...	7 10 0
Compound Girders, ordinary sections	9 0 0 ...	10 0 0
Steel Compound Stanchions	11 0 0 ...	12 0 0
Angles, Tees, and Channels, ordinary sections	9 0 0 ...	10 0 0
Flitch Plates	9 0 0 ...	9 10 0
Cast Iron Columns and Stanchions including ordinary patterns	7 10 0 ...	8 10 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON—		
Common Bars	8 10 0 ...	9 0 0
Staffordshire Crown Bars, good merchant quality	8 15 0 ...	9 5 0
Staffordshire "Marked Bars"	10 10 0 ...	—
Mild Steel Bars	8 15 0 ...	9 5 0
Hoop Iron, basis price	9 5 0 ...	9 10 0
" Galvanised	17 0 0 ...	—

("And upwards, according to size and gauge.)

Sheet Iron Black—		
Ordinary sizes to 20 g.	9 15 0 ...	—
" " 24 g.	10 15 0 ...	—
" " 26 g.	12 5 0 ...	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 0 0 ...	—
Ordinary sizes to 22 g. and 24 g.	15 10 0 ...	—
" " 26 g.	16 10 0 ...	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	18 0 0 ...	—
" " 22 g. and 24 g.	18 10 0 ...	—
" " 26 g.	20 0 0 ...	—
Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	14 10 0 ...	—
" " 22 g. and 24 g.	14 15 0 ...	—
" " 26 g.	16 5 0 ...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12 0 0 ...	—
Best Soft Steel Sheets, 22 g. & 24 g.	13 0 0 ...	—
" " " 26 g.	15 0 0 ...	—
Cut Nails, 3 in. to 6 in.	10 10 0 ...	11 0 0

(Under 3 in., usual trade extras.)

	Per ton, in London. £ s. d.	
LEAD, &c.		
LEAD—Sheet, English, 4lb. and up.	16 0 0 ...	—
Pipe in coils	16 10 0 ...	—
Soil pipe	19 10 0 ...	—
Compo pipe	19 10 0 ...	—
ZINC—Sheet—	In casks of 10 cwt.	
Vielle Montagne	28 12 6 ...	—
Silesian	28 5 0 ...	—

Zinc, in bundles, 1s. per cwt. extra.

COPPER—			
Strong Sheet	per lb.	0 1 0 ...	—
Thin "	"	0 1 1 ...	—
Copper nails	"	0 0 10 ...	—
Copper wire	"	0 0 10 ...	—
BRASS—			
Strong Sheet	"	0 0 11 ...	—
Thin	"	0 1 0 ...	—
TIN—English Ingots	"	0 1 5 ...	—
SOLDER—Plumbers'	"	0 0 7 ...	—
Tinmen's	"	0 0 9 ...	—
Blowpipe	"	0 1 0 ...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3d.
" fourths	1¾d.	32 oz. thirds	5d.
21 oz. thirds	3d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
26 oz. thirds	4d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

⅛ Hartley's	2½d.	Figured, Oxford	
¼ "	2½d.	Rolled, & 'Oceanic'	
½ "	2½d.	Glass, white	3½d.
		Ditto, tinted	5d.

OILS, &c.		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 1
" " in barrels	"	0 3 3
" " in drums	"	0 3 5
Boiled " in barrels	"	0 3 5
" " in drums	"	0 3 8
Turpentine in barrels	"	0 3 9
" in drums	"	0 3 11
Genuine Ground English White Lead	per ton	20 10 0
Red Lead, Dry	"	20 0 0
Best Linseed Oil Putty	per cwt.	0 9 0
Stockholm Tar	per barrel	1 13 0

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Plating Varnish	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 9
French and Brush Polish	0 10 6

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BERMONDSEY.—For external painting and internal decorating (part of) the Workhouse at Ladywell-road, Lewisham, S.E., according to the specification of Mr. A. H. Newman, F.R.I.B.A., etc., and quantities by Messrs. W. T. Farthing & Son, of 46, Strand, W.C., for the Guardians:—

W. Reason, 47 Rosebery-avenue, E.C. .. £1,149

BRENTWOOD (Essex).—For cleaning and painting works at High Wood School, for the Metropolitan Asylum Board. Mr. W. T. Hatch, Engineer-in-Chief:—

S. Squire	£237 0 0	R. Woollaston & Co.	£129 0 0
S. Newton	210 0 0	F. W. Jarvis, Brentwood*	112 0 0
A. E. Hubbard	207 0 0		
C. U. Gurney	203 1 6		
Vigor & Co.	148 10 0		

BRIGHTON.—For additions, etc., to the Municipal School of Art, Grand-parade, for the Education Committee. Messrs. T. Simpson & Son, Surveyors to the Committee, 16, Ship-street, Brighton:—

J. Barnes & Sons	£879 0 0	W. A. Field & Cox*	£721 0 0
Gates & Sons	774 19 6		
Saunders Bros.	743 10 0		

[All of Brighton.]

BRIGHTON.—For internal and external repairs, painting, etc., to certain of the schools; also for the installation of the electric light in the Park-street Council School, for Education Committee:—

Ditchling-road School (Interior Painting, etc.).

Holloway & Streete	£310 0 0	J. Barnden	£179 0 0
Brown & Sons	213 14 0	Gates & Sons*	174 19 6

St. Luke's-terrace School (Interior Painting, etc.).

J. Barnden	£288 0 0	Brown & Sons	£245 15 0
G. R. Lockyer	253 0 0	Gates & Sons*	219 19 6

St. Stephen's School (Interior Distempering).

T. Bell	£21 13 6	Gates & Sons	£14 17 6
J. Barnden	16 0 0	Brown & Sons*	13 3 0

Pelham-street School (Repairs to Caretaker's House).

Gates & Sons	£5 19 6	J. Barnden	£4 18 6
Brown & Sons	4 19 0	T. Bell*	3 11 6

Pelham-street School (Repairs to Boys' School Staircase).

Phillips & Son	£32 14 0	Skinner & Son	£23 15 0
Cox & Sons†	28 12 4	Rooke & Sons*	22 0 0

Offices, No. 54, Old Steine (Repairs to Caretaker's Rooms).

J. Barnden	£6 14 6	Gates & Sons	£5 16 6
Holloway & Streete*	5 19 0		

Park-street School (Installation of Electric Light, B, G, and I Departments).

	Wiring in Steel Barrel.	Wiring in Stannos Wire.
H. J. Galliers	£247 4 2	£274 14 0
Johnson & Phillips, Ltd.†	220 0 0	—
Reed & Sons	185 0 0	175 0 0
Adams Bros.*	180 10 0	182 10 0

Circus-street Boys' School (Removal of Stepped Platforms and Erection of Shutter).

Brown & Sons	£67 0	Barnes & Sons*	£59 10
G. R. Lockyer	64 0		

Municipal Secondary Boys' School (Alterations).

G. R. Lockyer	£186 0	Field & Cox	£155 0
Patching & Sons	169 0	Barnes & Sons*	149 0

Municipal School of Art (Alterations).

Barnes & Sons	£879 0 0	Saunders Bros.	£743 10 0
Gates & Sons	774 19 6	Field & Cox*	721 0 0

No. 102, Carlton Hill, School of Art (Alterations).

G. R. Lockyer	£99 15	Holloway & Streete	£92 0
W. A. Field & Cox	97 0	A. Cox & Sons	89 4
J. Barnes & Sons	93 10	Gates & Sons*	82 10

[All Brighton firms except †.]

BRISTOL.—For pointing walls, repairing chimney stacks, etc., at Eastville Workhouse, for Bristol Guardians:—

Marsh & Stone	£492 0 0	S. Lovell	£163 9 0
A. Giblett & Sons	315 10 0	F. S. Hunt	131 0 0
E. Mcsaop & Sons	245 0 0	W. Ash	125 0 0
T. S. Willis	230 18 0	C. Harvey, Bristol*	110 10 9
W. J. Bray	176 3 8		

BRISTOL.—For plastering, painting, etc., male sick wards, Eastville Workhouse, for Bristol Guardians:—

W. J. Bray	£178 9 3	Marsh & Stone	£168 0 0
F. S. Hunt	155 0 0	S. Lovell, Bristol*	78 12 0
A. Giblett & Sons	143 0 0		
W. Ash	118 10 0		

CARSHALTON (Surrey).—For cleaning and painting works at the Children's Infirmary, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

W. Hussey	£360	J. Gower & Son, 27, Trinity-road, Tooting*	£175
E. J. Burnand	266		
Lole & Co.	224		

CATHAYS (Cardiff).—For alterations and additions to the Miuny-at eet Laundry, Cathays, Cardiff, for the Cardiff Steam Laundry, Carpet and Window Cleaning Co., Ltd. Mr. H. Budgen, architect, 95, St. Mary street, Cardiff:—

G. Cousens & Sons	£675	Tucker Bros	£630
W. Thomas & Co.	675	W. T. Morgan†	598
Knox & Wells	637		

CLAYGATE.—For making-up part of Claremont-road, for Esher and the Dittons Urban District Council. Mr. H. C. Fread, Surveyor to the Council:—

Truman & Co.	£729 0 0	H. M. Blaker	£618 15 0
Willcox & Co.	680 12 3	Wheeler & Co.	598 0 0
Free & Sons	644 0 0	May & Son	560 0 0
S. Kavanagh & Co.	627 0 0		

DUFFRYN RHONDDA.—For constructing streets and sewers at Duffryn Rhondda, Port Talbot, for the Duffryn Rhondda Colliery Company, Ltd. Mr. F. B. Smith, C.E., Port Talbot:—

R. Jones	£2,486 14 0	A. Richards	£2 073 1 11
T. Walker	2,422 8 11	W. E. Willis	2,043 7 0
J. Strachan	2,366 10 0	J. L. Hancock	2,017 5 7
W. & T. R. Watson	2,257 0 0	A. Scott, Port Talbot†	2,007 0 0
J. Sutherland	2,208 17 0	Thomas & Jones	1,997 12 0
Barnes & Chaplin	2,143 13 0	A. G. Collins	1,922 19 0
G. L. Morgan	2,104 13 8		

[Four still higher tenders also received.]

FEATHERSTONE.—For private street works in Albert-street, Post Office-road (part of), Newport-terrace, Wilson-street, and Whiteley-street, for the Urban District Council. Mr. Samuel Chesney, Engineer and Surveyor, Council Offices, Featherstone. Quantities by Mr. W. H. Fearnley, Station-lane, Featherstone:—

Sidebottom & Brown	£2,229 12 5	G. Clements	£1,836 18 5
J. Speight	2,204 14 0	C. Haigh	1,714 16 5
S. Coop & Son	1,984 2 0	W. H. Mason, Featherstone*	1,582 4 1
F. Eyre	1,866 6 3	D. Armitage	1,580 12 6

FOOTSCRAY.—For enlargement of Longlands Council School, for Kent Education Committee. Mr. Wilfrid H. Robinson, Architect:—

F. Smith & Co.	£2,034 0	T. Knight	£1,632 0
C. Sutton	1,893 0	F. & G. Foster	1,651 0
T. Crossley & Son	1,880 0	J. Podger & Sons	1 644 0
J. & C. Bowyer, Ltd.	1,806 0	C. E. Skinner	1,629 0
C. E. Wallis & Sons, Ltd.	1,742 0	Bishop & Sons	1,625 0
E. & G. Taylor	1,727 10	G. Baker & Son	1,619 0
Thomas & Edge	1,680 0	R. E. Nightingale	1,616 0
A. B. Ingleton	1,677 0	J. Knight	1,577 0
J. A. Davison	1,675 0	Friday & Ling, Northend Works, Erith†	1,570 0
W. Owen & Son	1,675 0	J. W. Edingham	1,543 0
A. E. Tong	1,667 0	E. J. Bowles	1,535 0
G. Bowes	1,663 0	F. Webster & Son	1,496 0

† Recommended for acceptance.

GREAT MISSENDEN.—For restoration of The Lee Church, Great Missenden, Buckinghamshire. Mr. Geo. H. Fellowes Prynne, F.R.I.B.A., architect, 6, Queen Anne's-gate, Westminster, S.W. Quantities by Mr. R. Henry Hale, F.S.I., of 6, Queen Anne's-gate, Westminster, S.W.:—

Goddard & Sons	£1,684 0 0	G. Darlington	£1,484 0 0
H. & A. Wright	1,547 0 0	Webster & Cannon	1,411 0 0
Walden & Cox	1,540 0 0	Honour & Sons, Tring*	1,395 15 11
Bowman & Sons	1,492 0 0		
Wilkins & Sons	1,488 0 0		

GREENWICH.—For providing and fixing heating apparatus at the new school on the Sharington-road site, for London County Council:—

J. Wontner-Smith, Gray, & Co.	£759 0
Stevens & Sons	681 0
J. C. Christie	605 10
W. G. Cannon & Sons, Ltd.	598 0
J. & F. May	564 10
Tilley Bros.	546 8
Cannon & Hefford	529 15
Palowkar & Sons	522 0
Brightside Foundry & Engineering Co., Ltd.	507 0
General Iron Foundry Co., Ltd., 43, Upper Thames-street*	504 0

[The Architect's estimate, comparable with the tenders, is £565.]

HANWELL.—For additions and alterations to male ward 19 and the general bathroom, and to the general storerooms at the Asylum, for the London County Council:—

Chambers & Co.	£3,689 10	Higgs & Hill, Ltd.	£3,084 0
E. Lawrence & Sons, Ltd.	3,372 0	J. Grimwood, Ltd.	3,047 0
Leslie & Co., Ltd.	3,289 0	J. Dorey & Co., Ltd.	2,796 0
H. Lovatt, Ltd.	3,109 0	J. Carmichael, Wandsworth*	2,675 0
W. J. Dickens	3,100 0		

HEREFORD.—For painting and distempering at the Training College, for Herefordshire County Council Education Committee:—

C. J. Vickery	£250	E. W. Wilks & Son, White Cross-road, Hereford*	£117
Cooke & Son	175		

LITTLEHAMPTON (Sussex). — For cleaning and painting works, Millfield, Rustington, near Littlehampton, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

J. Oliver & Sons	£345 0 0	B. Jewell	£270 0 0
A. Churcher & Sons	335 10 0	J. Lindfield & Sons, Ltd., New-road, Littlehampton*	269 0 0
Vigor & Co.	325 0 0		
A. Crouch	317 0 0		
C. J. Drake & Co.	280 0 0		
Snewing Bros.	271 0 0	Summers Bros.	264 11 6

LONDON.—For the alteration of the superstructure of Battersea Bridge, and the supply of special work in connexion with the construction, on the underground conduit system of electric traction, of the authorised tramways from Battersea Park-road to King's-road, Chelsea, for the London County Council:—

E. Finch & Co., Ltd.	£11,759 7 5
Perry & Co. (Bow), Ltd.	9,592 0 0
Head, Wrightson, & Co., Ltd.	9,083 6 4
W. Muirhead & Co., Ltd.	8,999 16 6
A. Thorne & Sons	8,544 2 10
J. Mowlem & Co., Ltd.	8,455 0 0
A. Handyside & Co., Ltd.	8,327 10 6
Orr, Watt, & Co., Ltd.	7,706 10 2
Patent Shaft and Axletree Co., Ltd.	7,619 7 0
Kirk & Randall	7,494 0 0
Widnes Foundry Co.	7,439 2 0
Rowlingsons & Co.	7,365 10 9
Dick, Kerr, & Co., Ltd., Abchurch-yard, E.C.*	6,841 17 0

[The Chief Engineer's estimate, comparable with the tenders, is £6,995.]

LONDON.—For carrying out minor improvements at the Hanover-street School, for London County Council:—

C. P. Roberts & Co...	£780	Stevens & Sons	£628
J. Grover & Son	745	L. H. & R. Roberts..	625
Markham & Markham	719	E. Lawrance & Sons, Ltd.	570
McCormick & Sons, Ltd.	687	J. C. Mather, 38, Northampton-street, Islington*	540
G. S. S. Williams & Son	660		
J. Willmott & Sons ..	655		

[The Architect's estimate, comparable with the tenders, is £597.]

LONDON.—For the provision of a penstock for the new southern low-level sewer from Deptford to Battersea, for the London County Council:—

C. Goodfellow & Co., Ltd.....	£375	J. Cochrane	£249
Glenfield & Kennedy, Ltd.....	270	Markham & Co., Ltd.	235
		J. Blakeborough & Sons, Brighouse* ..	187

MIDHURST.—For alterations, etc., to the Grammar School, for West Sussex and Chichester Joint Education Committee. Mr. Hayden P. Roberts, A.R.I.B.A., County Education Architect, Horsham:—

Haslemere Builders, Ltd.....	£1,200 0	Chapman & Co.	£1,000 0
F. Sandell & Sons	1,175 0	H. C. Deane	998 10
H. Duncan	1,159 0	Crane Bros.	987 15
R. Cook & Sons	1,117 0	Crosby & Co.....	935 0
J. Lougley & Co.	1,108 0	G. Potter	930 0
Rowland Bros..	1,069 0	W. Potter, Horsham*.....	895 0
H. Lindfield & Son	1,031 0		

[Architect's estimate, comparable with tenders, £940.]

NEWPORT (Salop).—For restoration of the tower of St. Nicholas's Church, Newport, Salop. Mr. Geo. H. Fellowes Prynne, F.R.I.B.A., architect, of 6, Queen Anne's-gate, Westminster, S.W. Quantities by Mr. R. Henry Hale, F.S.I., of 6, Queen Anne's-gate, Westminster, S.W.:—

Bowdler & Co..	£2,500 0 0	J. & A. Brazier.	£2,009 7 1
Whittingham & Sons.....	2,300 0 0	Bowman & Sons	1,800 0 0
Bridgeman & Sons	2,196 0 0	Wilkins & Sons, Bristol*	1,569 0 0

NORBURY.—For the erection of 112 cottages on section B of the Norbury Estate, for the London County Council:—

F. & H. F. Higgs..	£27,288	C. Wall, Ltd.	£21,140
W. Akers & Co., Ltd.	24,150	F. & T. Thorne ..	20,767
G. E. Wallis & Sons, Ltd.	22,526	Rowley Bros.	20,730
J. Smith & Sons ..	22,352	F. W. Fletcher ..	20,526
Gathercole Bros. ..	21,816	Nicholls & Son, Finchley*	18,765

[The Architect's estimate, comparable with the tenders, is £22,658.]

PENKRIDGE.—For supplying and laying water mains, etc., for Cannock Rural District Council. Mr. Herbert M. Whitehead, Engineer. Penkridge, Staffs:—

Supplying Mains.

Cockrane & Co., Ltd., Woodside Ironworks, Dudley £2,117 1 8

Laying Mains, etc.

G. Law..... 1,523 15 2

ROTHERHITHE.—For additions, etc., to certain staff buildings at South Wharf Smallpox Shelter, for the Metropolitan Asylums Board. Mr. W. T. Hatch, M Inst.C.E., M.I.Mech.E., Engineer-in-Chief:—

—	Bathing and changing accommodation.	Cleaning and painting.	Total.
	£ s.	£ s.	£ s.
W. J. Fryer & Co.....	415 0	189 0	604 0
W. Reason.....	395 0	174 0	569 0
F. Smith & Co.	367 15	139 5	507 0
E. Dyke.....	349 0	149 0	498 0
Wood Bros., 2, Victoria-road, Forest Gate, E.*.	362 0	75 0	437 0

SHREWSBURY.—For erecting public abattoirs, Rouzhill. Mr. Arthur E. Williams, Architect and Surveyor, County-chambers, 17, High-street, Shrewsbury. Quantities by the Architect:—

W. Higley	£6,562 18	T. Pace.....	£5,403 0
E. H. Nicholas	6,082 0	T. Morris & Sons	5,340 0
W. Bowdler & Co.	5,620 0	G. H. Bickerton, Shrewsbury ..	5,275 0
H. Price	5,600 0		
Treasure & Son, Ltd.	5,430 0		

SOUTHAMPTON.—For erecting chapel and lodge and offices at the Hollybrook Cemetery, for the Corporation. Mr. J. A. Crowther, Borough Engineer:—

	Chapel.	Lodge and Offices.
J. Nichol, Southampton	£2,341*	£942
W. Buck, jun.	2,379	884
J. E. Franklin	2,374	—
H. Stevens & Co.	2,456	948
Jenkins & Son, Ltd.....	2,493	965
Wakeham Bros.	2 520	925
F. Osman & Co.....	2,587	877
J. Douglas, Southampton ..	2,600	860*

SOUTHEND-ON-SEA.—For additions, etc., to Leigh-road and Brewery-road Council Schools, for the Education Committee. Mr. Ernest J. Elford, C.E., Borough Engineer and Surveyor:—

Leigh-road.

F. E. Woodhams	£195	F. Davey	£183
J. C. Flaxman	190	E. & B. H. Davey* ..	172
F. & E. Davey	185		

Brewery-road.

F. E. Woodhams	£185	F. & E Davey	£175
J. C. Flaxman	180	E. & B. H. Davey ..	165
F. Davey	178		

[Borough Surveyor's estimate,* £107.]

STANLEY.—For alterations and additions to premises in Front-street, for West Stanley Co-operative Society, Ltd. Mr. Wm. Forster, architect, Front-street, Stanley:—

E. Dyson	£1,624 0 0	P. Heel, Stanley, S.O.....	£1,476 10 0
P. Duffy	1,600 0 0		

THE BOURNE (Surrey).—For erecting first portion of St. Thomas's Church. Mr. Henry S. Sidebotham, architect, 108, High-street, Guildford, and Sir Charles A. Nicholson, Bart., collaborating architect. Quantities by Mr. B. G. Thompson, 5, Staple Inn, Holborn:—

J. H. Holden	£2,430	Mardon & Mills	£1,896
Swayne & Son	2,226	Bunning & Fitton Adams, Ltd.	1,895
F. & H. F. Higgs ..	2,080		
Benfield & Loxley..	2,020	Coesar Bros.	1,882
Norris & Co.	1,990	Crosby & Co.	1,879
Goddard & Sons ..	1,938	Musselwhite & Sapp	1,785

WEMBLEY.—For making-up Ecclestone-mews and Mostyn-avenue, for the Urban District Council. Mr. C. R. W. Chapman, Surveyor. Public Offices, Wembley:—

	Ecclestone-mews.	Mostyn-avenue.
E. & E. Iles	£742 2 9 ..	£1,624 9 10
F. G. Brummell, Willesden*	658 7 2 ..	1,371 11 10
Willis & Powis	678 5 0 ..	1,469 14 3
T. Adams	725 7 6 ..	1,444 13 2
T. Watson	825 12 10 ..	1,644 17 4
C. T. Gibbons	640 0 0 ..	1,398 11 4
J. Mowlem & Co.	713 0 0 ..	1,801 0 0
H. Williams	812 10 0 ..	1,592 9 0
E. Free & Sons	783 15 2 ..	1,488 12 6
R. Dykes	800 9 2 ..	1,846 12 11
A. Wooster	660 9 0 ..	1,595 9 4
A. Angus	900 11 4 ..	2,059 19 4

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